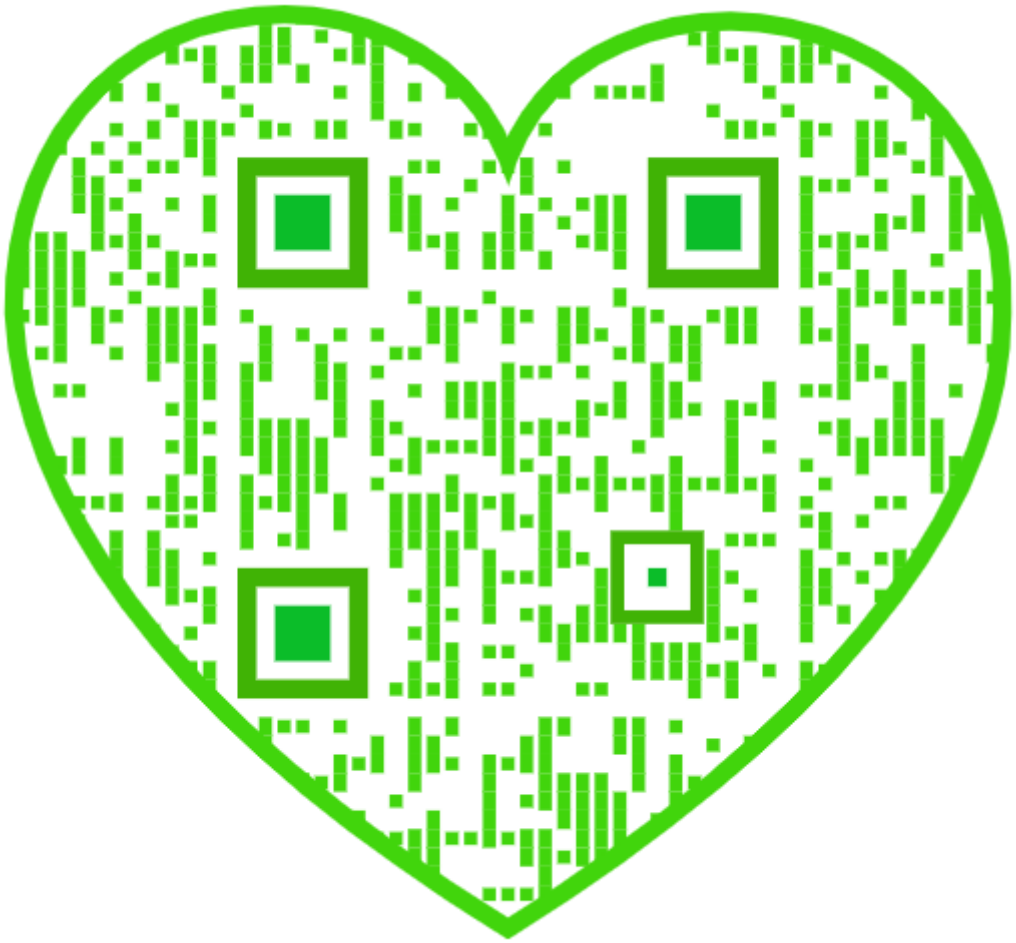

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THE PRINCIPLES OF MONEY AND BANKING

BY

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ETC., ETC.

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TO

HUGH H. HANNA

WHOSE UNSELFISH LABORS HAVE DONE SO MUCH TO ESTABLISH
A SOUND MONETARY SYSTEM IN AMERICA AND EXTEND
IT TO OTHER PARTS OF THE WORLD

PREFACE

WHEN the writing of this book was begun there were only two standard works in English dealing systematically with the subject of money and banking—the work of General Walker on *Money*, and that of Mr. Jevons on *Money and the Mechanism of Exchange*. That both were of a high order of merit is attested by the fact that they have survived the changes of more than a generation since they were written.

Both General Walker and Mr. Jevons differed from many modern economists on the two important subjects of bimetallism and the principle of a banking currency. The chief justification, however, for a new work on the subject of money and banking is not afforded so much by this difference of opinion as by the progress which has taken place in monetary and banking science since their time. Many problems which a generation ago appeared obscure have been solved by the progress of events. Systems of currency have been successfully put in operation which had not then been subjected to the test of experience. It is one of the objects of this work to record the progress thus made.

Among the important events which have marked the monetary history of the past generation has been the steady progress towards the gold standard in commercial countries, until to-day other systems have practically been superseded or abandoned in favor of some form of money based upon gold. Among the steps which have been taken to bring about this result are several in which

the writer himself has had a share, for the Philippines, for Mexico, and for the Republic of Panama.

Aside from this record of recent monetary progress, there are two distinctive subjects here treated which were not dwelt upon in earlier systematic treatises. One is the fact that the development of money and of existing monetary systems has been the result of a long evolution, extending from the cattle-money of prehistoric times down to the perfected gold coin and check and deposit system of to-day. The other is that the progress of this evolution has followed the principle of marginal utility, which has been so successfully applied to the solution of economic problems, but was not until recently applied in detail to the subject of money.

The chapters of this work have been written during the interludes of other occupations during the past six years. Some of them have appeared from time to time in financial and economic publications, but they were written with a distinct view to this work and not as independent and disconnected discussions. The author acknowledges obligations to the publishers of the New York *Bankers' Magazine*, the *North American Review*, the *Quarterly Journal of Economics*, the *Political Science Quarterly*, the *Yale Review*, the *Journal of Political Economy*, the *Annals of the American Academy of Political and Social Science*, *Sound Currency*, and *Trust Companies' Magazine*, for permission to use these articles in this work. In finally preparing them for publication, there has been much revision, re-arrangement and adjustment of the facts to the latest available material.

In the bibliography will be found a list of about a score of books, marked with an asterisk, which in the opinion of the author would form the nucleus of a useful library for the beginner in monetary science. It is not intended in this enumeration to discriminate against many works of merit and importance not thus noted, but only to include one or two representative works on different

branches of the subject which together afford a fairly comprehensive view of the evolution of money and banking from its beginnings to its modern development.

A French translation of this work will be published shortly in Paris. The translation will be made by the well-known author, economist and banker, M. Raphaël Georges-Lévy.

CHARLES A. CONANT.

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BOOK I

THE EVOLUTION OF MODERN MONEY

THE PRINCIPLES OF MONEY AND BANKING

BOOK I

I

THE PLACE OF MONEY IN ECONOMICS

Definition of money here limited to metal of intrinsic value—Other means of exchange properly defined as "currency"—Conflicting views of the money function—The economic importance of money—Application of economic principles to monetary events—How the use of money promoted division of labor and emancipation of the laborer from the soil—Money, however, only one of many factors affecting economic conditions.

THE origins of the English word *money* go back to the first coinage of silver in Rome. It is told by Livy how the first regular mint was established at the capitol, in the neighborhood of the temple of the Goddess Juno Moneta—so called from the Latin *moneta* (a warning), because the goddess had there revealed to Manlius the assault of the Gauls. One of the early Roman coins bore on one side the head of the goddess, with her name, Moneta, and on the reverse the instruments of coinage. Gradually the name passed to the product of the mint, and finally this product, the coinage, was itself personified as a goddess, *Moneta*, and even three *Monetæ* came to be recognized as guardians of the three metals—

gold, silver, and copper—from which Roman money was coined.[1]

The definition of money which will be adopted in this work is that commodity of intrinsic value acceptable in exchanges which has become by law or custom the usual tender for debt.

Put into more popular language, this means that the term money, under existing social conditions, is applicable to gold or silver coin, and should not be extended to the various forms of paper which economize the use of money. For most practical purposes, gold bullion held in bank reserves is properly classed as money, and falls within the definition given. It will be seen hereafter that in the actual use of money in domestic transactions the coinage of the metals is an important factor; but in foreign trade bullion is quite as useful as coin, and in domestic use bullion in bank reserves may be said, in a sense, to be serving the purposes of coined and circulating money through its paper representatives.

The use of the word money is extended by many authorities to different forms of credit obligations—by some to redeemable government paper or redeemable bank-notes; by others to irredeemable paper of either type; and by still others to the checks, deposit entries, and various written instruments which are employed in carrying on exchanges. The difficulty about these extensions of the definition beyond coined metal of intrinsic value is that there is no logical point at which the things included in the definition of money terminate. If the definition is extended to instruments of paper credit, it is not clear why it should stop with legal-tender instruments and fail to include bank-notes which are not legal tender. If it is extended to the latter, it is not clear why it should not extend also to foreign bills of exchange, which are kept by many of the European banks as a part of their coin

[1] Lenormant, *La Monnaie dans l'Antiquité*, I., p. 83.

reserves, ready to be sold for coin whenever they have need for it.

In popular usage there is, perhaps, no serious objection to extending the term "money" to the instruments of daily circulation, but for scientific purposes it is much better that it should be limited in tangible and definite manner, and its use will be so limited in this work. There are several other terms of general application, among which "currency" may be held to apply to the ordinary instruments of circulation which pass without endorsement, and "cash" has a still more indefinite meaning, which extends to all the loanable capital in the hands of banks or subject to repayment to them at call.[1]

The definition of money above given conforms in principle to that of the best authorities on the subject, in requiring money to have intrinsic value, or to represent intrinsic value. A certain class of definitions make only slight changes in the emphasis laid upon certain phases of this definition.[2] There is, however, another class of definitions of money which treat it only as a symbol or ticket, equally effective for the purpose of carrying on exchanges without possessing intrinsic value. This view is expressed, though not adopted, by Gide, in the declaration that "Every piece of money should be considered as a bond issued against the aggregate of existing wealth, and giving the right to the bearer to have delivered to him any portion whatever of this wealth, at his option, to

[1] Speaking of the London "money market," Sidgwick says, "But if we ask ourselves where and in what form this 'cash' exists, it must be evident that, at any given time, most of it exists only in the form of liabilities or obligations, acknowledged by rows of figures in the bankers' books; and that it is transferred from owner to owner, and thus fulfils all the functions of a medium of exchange, without ever assuming a more material shape."—*The Principles of Political Economy*, p. 227.

[2] Upon this principle is based the definition of Chevalier: "Money is an instrument which serves as a measure in exchanges and is in itself an equivalent."—*La Monnaie*, p. 1.

the amount of the value of the piece."[1] In so far as this theory ignores the necessity for intrinsic value in the material of money, it is likely to lead to grave errors.

It may be a sound theoretical conception, as expressed by Walker, that values of different articles can be compared through a common denominator, having no value in itself; but such a measure cannot, in the nature of the case, be a standard of value. An article used as money, in order to have stability of value sufficient to make it a safe measure of other things, must itself have intrinsic value. The reason for confusion of thought on this subject lies partly in the fact that money is chiefly employed as an instrumental commodity instead of ministering directly to consumption. As Pantaleoni declares, "Money is in a paramount degree an instrumental commodity, not only because its function is solely and exclusively instrumental, but further because it discharges that function without the aid of any complementary commodity."[2] Because money thus stands between other commodities as an instrument for exchanging them, it has acquired a peculiar status, which Marx thus analyzes:[3]

"We have seen that the money-form is but the reflex, thrown upon one single commodity, of the value relations between all the rest. That money is a commodity is, therefore, a new discovery only for those who, when they analyze it, start from its fully developed shape. The act of exchange gives to the commodity converted into money, not its value, but its specific value-form. By confounding these two distinct things some writers have been led to hold that the value of gold and silver is imaginary. The fact that money can, in certain functions, be replaced by mere symbols of itself, gave rise to that other mistaken

[1] *Principes d'Économie Politique*, p. 218. Roscher declares, "The person who takes money as such must always harbor the hope of being able to dispose of it again as money."—*Political Economy*, I., p. 351.

[2] *Pure Economics*, p. 221.

[3] *Capital*, p. 62.

notion, that it is itself a mere symbol. Nevertheless under this error lurked a presentiment that the money-form of an object is not an inseparable part of that object, but is simply the form under which certain social relations manifest themselves. In this sense every commodity is a symbol, since, in so far as it is value, it is only the material envelope of the human labor spent upon it."

The study of money is only a part of the science of economics, but it is at once an important part, and one whose principles can be more definitely ascertained and clearly laid down than those of many other branches of the science. In matters relating to money the hypothetical assumptions of deductive reasoning are more uniformly borne out by events than in almost any other field. "The economic man," acting uniformly under the play of the motive of enlightened self-interest, is a more constant factor in monetary problems than in those arising in other fields in which individual characteristics, prejudices, and motives, political, sentimental, and moral, come into play to modify the operation of the motive of self-interest. The limitation is true of monetary matters in fewer cases than of other economic problems, which is presented by Cairnes:[1]

"There are few practical problems which do not present other aspects than the purely economical—political, moral, educational, artistic aspects—and these may involve consequences so weighty as to turn the scale against purely economic solutions."

The so-called laws of economic science are based upon reasonable deduction as to the action of the economic man under the operation of the motive of self-interest. They are not natural laws in any such sense as the laws of physics. They depend primarily upon individual action and initiative. Being the result of psychic ten-

[1] *Character and Logical Method of Political Economy*, p. 37.

dencies, they are subject to the variations of individual judgment and conflict of motive. With some allowance for these variations, however, the action of the average man in matters affecting his pocket follows lines which can be calculated with reasonable precision. The champions of particular dogmas in monetary matters sometimes set up their maxims as "natural laws," and characterize any other proposals as unnatural or artificial. Such a distinction, however, is, in the nature of the case, one of degree and not of kind.

Existing monetary systems in civilized countries rest upon legislation. The only monetary system which would be "natural," even in a restricted sense, would be that in which the precious metals should be exchanged as commodities by weight and assay, without the intervention of the state to stamp them as coins, to determine their purity, or to give them any distinctive character as money. The discussion of any particular monetary system or project, therefore, cannot turn absolutely upon the question whether it is "natural" or "artificial," but whether it conforms most nearly to the requirements of commercial society in its existing stage of progress, in view of the recognized motives of self-interest which govern men in commercial affairs. The dominant motive of self-interest is so strong that it creates tendencies which the state cannot prudently attempt to override, but if legislation is so framed as to follow the lines of least resistance, by the adoption of laws whose successful working conforms to the self-interest of the citizen, then monetary systems may be strongly influenced by governmental action.

Within such limits as protect the individual against needless fraud, and promote the convenience of the mass of men, free play should undoubtedly be given in matters relating to money to the tendencies of individual self-interest. Only by the free play of those tendencies, on the one hand, or the subtle evasion of attempts to counter-

act them by law, have developed those principles of monetary science which have made money and its paper representatives the delicate and effective instrument which they have become after centuries of experimentation in the substitution of money payments for barter, in the promotion of international trade, in the division of labor, in the consecration of the economic freedom of the individual, and, finally, in the economic and political progress of civilized communities.

In the simplest form of existence there was no demand for money, because there was practically no exchange of goods. There was not even an organization of society on an economic basis, if (as Bucher declares) "an economy supposes the management of property, the care for the future as well as the present, a distribution of time intelligently employed; economy signifies labor, the valuation of objects, the regulation of their consumption, the ascent from generation to generation of the conquests of civilization." [1] Gradually, exchanges of services and products, to meet special emergencies in primitive society, led to direct exchange of surplus goods for each other. This advance from the first forms of barter to the use of coined money involved a process of evolution which extended over many centuries.

As the refinement of production and civilization in mediæval society gradually led to the gathering of artisans in towns, a system of exchange developed between the town and the surrounding country which affected more deeply than previous exchanges the fundamental economic life of the community. Special markets grew up, where a great mass of exchanges were set off against each other without large demands for money. They were, however, expressed in terms of money, which was the measure of value of tributes, taxes, and presents, even when these payments were actually made in kind.[2] The

[1] *Études d'Histoire et d'Économie Politique*, p. 25.
[2] Bucher, p. 72.

substitution of money payments for services in kind tended to sever the relations between master and man and pave the way for economic freedom. As Cunningham has pointed out: [1]

"When payment is made in kind, in return for service rendered, the laborer has little choice as to the form in which he will take his earnings, and no choice as to the time of labor; when he works for wages he is free to choose his own way of spending his earnings, and free to decide whether he will work on the terms offered and for the time specified, or no. This is a step in advance because it opens up possibilities of progress, and of rising in the world, though the wage-earner does not necessarily enjoy increased comfort. . . . Freedom to migrate, freedom to change employment, freedom to work or not and to spend what he earns as he likes, are important elements in personal independence; and these only became possible as the consequences of the introduction of money taxation, the capital of moneyed men, and the payment of wages in money. In the Athens of the time of Pericles these conditions were so far introduced and a considerable number of the inhabitants had secured such economic independence, that they were able to enjoy a personal political freedom, such as was impossible in the ancient Egypt or in Phœnicia."

The effect of a medium of exchange, not only in permitting exchanges, but in stimulating production and adapting it to every human need, has been thus defined by Tucker: [2]

"As every article has its known market price in the general measure of value, where there is one, every producer can thereby better adapt his supply to the varying demands and diversified tastes of the community. Money furnishes a very sensitive barometer of these variations,

[1] *Western Civilization*, I., p. 95.
[2] *The Theory of Money and Banks Investigated*, p. 14.

by consulting which the industrious classes will be less likely to misdirect their labor, and create redundancy on the one hand, or subject the community to scarcity on the other. Where the value of the articles produced had to be exchanged some three or four times before the producer obtained what he wanted, it would not be easy to say what was the market value of his commodity. The knowledge, at least, would be far less prompt, easy, and precise, than it is where there is a general measure of value.

"The introduction of money has also a manifest tendency to beget frugality, and encourage accumulation. Without such a convenient and unchanging representative value, or mode of investment, many things would be wastefully consumed, supposing them to be produced, which would be saved, if convertible into money, instead of being exchangeable merely for other merchandise."

The last point made by Tucker is put in even stronger terms by Roscher, when he says:[1]

"Only when money has become the instrument of trade, is it possible to separate the net from the gross returns, and, therefore, to manage income properly (Schaffle). Now, also, it becomes for the first time really remunerative to produce more than one needs for his own use, and to save. Without money, the owner of any one kind of capital, who could not employ it himself, would be obliged, if he desired to loan it, to find not only a person who was in need of capital, but one who needed the very kind of capital he had."

Hence the introduction of any article as money, having the qualities of durability, transportability, and divisibility, marked an important economic revolution in society. In ancient society, organized upon the basis of slavery, there was no great demand for money for the actual purposes of exchange except in the cities and in foreign

[1] *Principles of Political Economy*, I., p. 348.

trade. It was the same with mediæval society. "The feudal lord," Guyot truly declares, "could not sell his oats, his game, nor his cattle. If he had wide lands he was not able to distribute their products abroad. It was necessary then that he should consume his products where they were produced, and thus he created around him a clientage which he supported and from which he demanded all sorts of services." [1]

St. Paul's Cathedral presented a typical illustration of the mediæval economy. Adjoining the cathedral was the horse-mill, a bake-house, and a brewery, where the grain was ground, bread was baked five times a fortnight, and beer was brewed twice a week under the supervision of the warden of the brew-house.[2] It was thus that both secular and religious society was organized in the Middle Ages. It was only gradually that payments were commuted into terms of money—payments to the state, to the barons, and to the heads of the religious houses. In the early days of England, after the Conquest, the kings used to receive from their manors certain quantities of provisions for supplying the daily necessities of the royal household. The royal officials knew precisely from what counties were due wheat, various kinds of flesh, provender for horses, and other necessities. Money was then employed for the payment of soldiers and for certain other purposes and was the standard for reckoning the value of the taxes paid in kind. As early as the times of Alfred and Ethelred in England, tenants sometimes paid in money, and the tax levied for the *Danegeld*, or tribute to the Danes, was collected in money.[3] But it was only some time after the Conquest, when Henry I. was obliged to cross the sea to suppress the insurrection in France, that the need of coined money began to be keenly felt.

It was in England that money payments first generally

[1] *L'Économie de l'Effort*, p. 35.
[2] Ashley, *English Economic History and Theory*, I., p. 45.
[3] Bry, *Histoire Industrielle et Économique de l'Angleterre*, p. 13.

took the place of services, and it was by the use of money, in connection with other causes, that Englishmen were able to secure the freedom of the individual and the possibility of modern industrial development. The laborer was no longer bound to the parish in which he was born, but could seek a free market for his labor where his special skill would command the highest pay. What the results were to English industry is thus set forth by Marshall:[1]

"Freedom of industry and enterprise, so far as its action reaches, tends to cause every one to seek that employment of his labor and capital in which he can turn them to best advantage; and this again leads him to try to obtain a special skill and facility in some particular task, by which he may earn the means of purchasing what he himself wants. And hence results a complex industrial organization, with much subtle division of labor."

Even in modern times, as we shall see hereafter, the substitution of money payments for the truck system has put an end to abuses in the relation of employer and laborer. In England severe limits were put upon the use of the truck system by the Truck Act of 1831, which forbade the payment of workmen wholly or in part by goods,[2] and in the manufacturing states of North America similar legislation soon followed. Under the old system the chief evil was not merely that those who lived under it were required to pay unreasonably high prices, but that they were not free to buy where and as they pleased. They had not the power which is given by ready money of asserting their economic independence. The diffusion of the use of money, therefore, has represented one of the essential steps in the progress of civilization. In our own day, the substitution of coined money for pieces passing by weight is one of the first measures generally regarded as essential in opening China to modern ideas. As declared elsewhere by the present writer:[3]

[1] *Principles of Economics*, I., p. 39. [2] Sykes, p. 4.
[3] *Wall Street and the Country*, p. 173.

"With the unification of national economic life, which will come to China with the extension of railways, must inevitably come, also, many other elements of Western civilization. Among these will be the use of money and the adoption of modern methods of credit. Wherever a railway is in process of construction, coined money will be required for buying the products of the country and paying wages. Wherever a railway is in operation, money will be the only practical medium for paying freights."

In spite of the important and essential part which money plays in the economy of modern society, the mistake should not be made by the student of looking upon money as the unique cause of economic changes. While disturbances in the currency system play an important part in industrial economy, the normal movements of a metallic currency are not so likely to be the causes of economic changes as to be the visible manifestations of such changes. The student of the fascinating subject of money should avoid the error of believing that money is itself the controlling element in the production and exchange of commodities. Other things being equal, it is fair to assume that the prosperity of a nation will depend upon the productive efficiency of its labor, and that this labor will exchange for an equivalent in the labor of other persons and other lands, influenced only in part by changes in the medium of exchange in which such transactions are made.

There will be occasion in this work to refer to many cases in which changes in monetary laws and the movements of money have been related to other important economic events. In some cases they have been the causes of such events, but in many others only the visible and conspicuous sign of disturbances due to other causes. Such theories as those of Sir Archibald Alison, in his *History of Europe*, that the fall of the Roman Empire was due to the deficiency of the precious metals, are exaggerations of the part which the metals play in exchange.

If the people of the Roman Empire continued to possess the same energy and productive efficiency and the same avenues for distributing their goods at a later date which they possessed at an earlier one, there is no reason to believe that the gradual decline of the volume of the precious metals over a long period of years would in itself have paralyzed their economic progress.

Whatever the merits of the question involved, the money supply could be only one of many factors in a constantly changing economic situation, in which the interplay of manifold causes would make doubtful the isolation and identification of an influence so remote. This tendency to elevate a single cause into the one cause controlling economic events, when these causes are manifold, involves a false sense of perspective which is as misleading as any other fundamental error in economic research.

In dealing, therefore, with such problems as the influence of the supply of the precious metals upon prices, the influence of bimetallism or monometallism upon national prosperity, the benefits or injuries caused by paper inflation, and changes in economic conditions preceding or following changes in banking laws—a true sense of perspective should not isolate banking phenomena from many other phenomena relating to changes in methods of production and distribution, in routes of transportation, in the movement of loanable capital, and in the efficiency of labor, in which money and banking methods indeed play an important part, but one which is usually instrumental rather than controlling.

In discussing the operation of monetary principles, therefore, there cannot be the same certainty, and should not be the same dogmatism, which may be justified in discussing physical laws. The so-called laws of money can be determined with greater precision by statistical inquiry, and by observation of recorded facts, than those of some other branches of economic science. The effects of over-issues of paper, the movements of the precious

metals under different conditions, the expansion and contraction of credit, as illustrated by bank-note issues, deposits, and clearings, can be traced with a certain degree of accuracy, from the very fact that issues of money and credit are usually subject to government supervision and statistical record. The statistics in civilized countries, in modern times, are reasonably accurate; they can be collected from a variety of sources, and comparisons can be made of the operation of measures substantially the same under differing conditions which approach the isolation of phenomena which is so important in scientific experiments. In spite of this advantage in the consideration of monetary problems, however, there are many disturbing influences in comparing different countries in the differences in general conditions, in the state of credit, and in the operation of extraneous causes, which prevent experiments even in monetary matters from being conducted, like those of physics, in a vacuum.

With this view of the part played by money in the economy of society, the study of its principles may well begin. There is, perhaps, nothing more stimulating and attractive than the formulation of these principles from trustworthy data, and if care is taken not to exaggerate the importance or the influence of any, but to give its proper weight to each, then a science of money can be built up by the careful student which will be nearly as exact as the science of physics. But such a result cannot be attained by hasty generalizations, narrow and distorted views of isolated phenomena, the abuse of statistics to support preconceived prejudices, or excessive dogmatism on questions whose ultimate solution must depend upon the progress and experience of society.

II

THE FUNCTIONS OF MONEY

How money grew out of the necessity for a medium of exchange—Benefits of a common denominator for expressing relations between various goods—Importance of a standard of value—The standard and the medium of exchange not always the same—How money and banking credits afford a store of value for postponed consumption—How they thus become a standard of deferred payments.

THE essential character of metallic money is that of a merchandise having value in exchange. It derives this value in exchange in some degree from its use as money, and in large degree also because it is prized for other uses. Money is a special merchandise which, by its natural value and adaptability as a medium of exchange in civilized society, serves as the intermediary for the exchange of other merchandise and services.[1] "It is a true merchandise," in the language of Laurent, "if one may call thus a product capable of exchange against another."[2] It has, however, some special characteristics, which are thus set forth by Block:[3]

"If money is a merchandise, it has a special character. It is received in preference to all others; its value at a given moment is the same everywhere (at least for moneys

[1] A similar definition is that of Courcelle-Seneuil: "A merchandise of known quality, of value varying little and easy of division, for which are exchanged all the objects offered in the market."—*Traité des Opérations de Banque*, p. 9.

[2] *Théorie des Opérations Financières*, p. 10.

[3] *Les Progrès de la Science Économique*, II., p. 37.

whose nominal corresponds to their intrinsic value); it is not destined, like a product or raw material, to remain finally with a consumer to be destroyed or transformed, for its mission is to pass from hand to hand to fulfil its work and resume its course—to circulate; it is a means and not an end."

The service of money to society is similar in character to that of roads and other means of communication. This fact was noted by Adam Smith, in laying the foundations of modern political economy, when he declared that "the gold and silver money which circulates in any country may very properly be compared to a highway, which, while it circulates and carries to market all the grass and corn of the country, produces itself not a single pile of either." The same image is gracefully presented by Tucker:[1]

"Its useful functions can be compared to nothing more aptly than to those of a canal or artificial road, by which the conveyance of articles from hand to hand is performed with greater ease, despatch, and safety, and which have always been found to give a great spring to useful industry and commercial enterprise, not only by improving existing markets, but also by creating new ones."

One of the most important facts to be kept in view in the study of monetary problems is the distinction between money and capital. Metallic money is a form of capital, but capital includes many other things than money. Capital includes the whole aggregate of exchangeable things capable of ministering to production or fulfilling the desires of men. Money is often spoken of as though it were the sole capital, because it is the most negotiable representative of capital.[2] There might, however, be, in theory at least, abundant capital without money, and

[1] *The Theory of Money and Banks Investigated*, p. 17.

[2] "Before the economists, the word *capital* was reserved for a sum of money lent at interest. It was not the only form of capital or the oldest, but it was that most in view."—Block, I., p. 424.

there might be sufficient supplies of money with deficient capital. Each of these conditions is illustrated to a certain extent during the progress of an economic crisis. Money becomes scarce and its rental price becomes high when commercial activity is arrested at the first outbreak of a crisis. Capital in the form of consumable goods is usually abundant at such times, and its owners are trying in vain to realize upon it in the more negotiable form of money. The situation becomes somewhat changed after the intensity of the crisis is over and the period of depression sets in which is marked by the accumulation of idle capital in banks. Even this accumulation, where it is in the form of bank credits, represents command over capital quite as much as command over money, but there is usually at such times a surfeit of actual currency for which there is little demand, because of the distrust and prostration which have followed the arrest of active commercial operations.

The volume of money in the world may be substantially the same under both conditions, but it is subject in the first instance to an exaggerated demand, not merely for its usual function as a medium of exchange, but as a store of value, while at a later stage of the crisis it ceases to be required so much as usual as a medium of exchange and is no longer hoarded as a store of value to the same extent as during the days of acute panic. The money of a nation is only a small part of its capital.[1] It is a vitally important part, under the organization of modern society, because it performs a function which could be performed with great difficulty, if at all, without it. The distinction is well drawn by Fetter:[2]

[1] "One does not take note that when capital takes the form of money, it retains it but a little while, and that more often it passes from hand to hand until consumed, valued in money without taking the form of it at all."—Courcelle-Seneuil, *Traité des Opérations de Banque*, p. 17.

[2] *The Principles of Economics*, p. 115.

"Capital must not be identified with money, although it is expressed in terms of money. While money and capital are not identical, neither are they opposite or mutually contradictory. Money is but one species of the genus capital. It is a particularly durable form when industry as a whole is considered, a particularly fleeting form in the individual's possession, and a particularly important, though not necessarily the most important, form in its social significance. The things composing capital are concrete things, scarce forms of wealth, some of which are yielding gratification at the present moment, or are destined to do so at some future moment; others of which are not themselves giving direct gratification, but are indirect agents for the gratifying of wants. To this latter group belongs money."

The statement of the difficulties of barter and the search for the means of curing them naturally leads to the definition of the functions of money. First in logical order may be named the requirement that there should be a common medium which any person should be able to exchange against any desired object, because the medium was generally desirable and generally exchangeable. Second is the necessity that the medium should be easily divisible and capable of expression in units, that it might be made a common denominator of all exchanges. Third is the necessity that the medium should have general, stable, and permanent exchange value, in order that it might constitute a safe standard for the common denominator and might be so acceptable that it would not be parted with except at the value for which it was obtained. Out of these requirements, refined by the necessities of commerce, have grown the five essential functions of money as they are recognized today:

(1) A medium of exchange.
(2) A common denominator.
(3) A standard of value.

(4) A store of value.

(5) A standard of deferred payments.

It has sometimes been contended that there are not five distinct functions of money, but that the function of a standard of value is linked with that of a common denominator, and that the function of a store of value is not applicable to money, but only to the precious metals when withdrawn from monetary uses. It is convenient, however, to discuss each function separately, in order to discover if real distinctions exist and to make as clear as possible even those functions which blend with each other.

I. The first important use of money in nearly every society is as a medium of exchange. The necessity for such a medium is pointed out by Nicholson in these words: [1]

"Without a complete revolution in the conditions of society, a medium of exchange is indispensable. Production rests on division of labor, and division of labor involves easy and prompt exchange, which, again, involves a common medium. Money in this sense is as essential to the interchange of commodities as language to the interchange of ideas, and in the last resort the interchange of commodities is for the most part the exchange of the services through which they are made. Thus money, in the sense of a common medium of exchange, is necessary in order to exchange all kinds of labor, from the highest to the lowest."

II. A common denominator affords the opportunity for referring each transaction to a common unit and comparing the value of articles, one with another.[2] If there

[1] *A Treatise on Money and Essays on Monetary Problems*, p. 16. The comparison of money with letters is made also by Gibbon and Chevalier.—*Vide* Walker, *Money*, p. 14.

[2] "There is need of such a measure, and it is analogous to the want experienced by the mathematician who has a column of fractions to sum up, and who does it by first reducing them all to a common denominator."—Roscher, I., p. 341.

were no common denominator, it would be necessary to calculate the value of every exchangeable article in the value of every other article. If two chickens were worth a hat, and three pair of shoes were worth a coat, these equations would afford no means of comparison between the value of chickens and coats. Such a basis of comparison might be found by adopting the chickens or the hat as the fixed point of departure. This would make the article chosen a common denominator and the problem would be solved. The most extensive properties, even to railways and steamboats, could be measured in chickens, as they are now measured in dollars, francs, or pounds sterling. But in the absence of a common unit, a tabular list of values for twelve articles exchangeable against each other would involve sixty-six different comparisons. The first article taken would have to be measured against each of the other eleven, the second would have to be measured against eleven others, and so on throughout the list. It would be impossible for any person to carry these relations constantly in his mind, with the great multiplicity of articles now the subject of commerce, and fluctuations in value, even in two or three articles, would practically destroy the value of a tabular statement. In the language of Mill, regarding the tailor, "The calculations must be recommenced on different data, every time he bartered his coats for a different kind of article; and there could be no current price, or regular quotations of value." [1] With the adoption of a common denominator in the form of money, the economic man realizes the advantages set forth by Bourguin: [2]

[1] *Principles of Political Economy* (bk. iii., chap. vii., § 1), II., p. 17.

[2] *La Mesure de la Valeur et la Monnaie*, p. 43. Marx declares, "While all commodities express their exchange values in gold, gold expresses its exchange value directly in all commodities. While commodities assume the form of exchange value in relation to each other, they lend to gold the form of the universal

"If I learn that the hectolitre of grain is worth twenty francs, immediately and by an unconscious operation of the mind, I measure the aggregate values of the grain by representing to myself everything which might be bought for twenty francs. By a blind and instantaneous intuition which the habit of the immemorial use of money has given, I grasp *en bloc*, as if forming an indivisible mass, the aggregate value of a twenty-franc piece over against the world of commodities and thus appreciate through the medium of money, without taking definite account of it, the entire series of relations of value between the hectolitre of grain and other merchandise."

III. The function of money as a standard of value is related to its function as a common denominator. It is the standard which gives form and fixity to the common denominator. The conception of a standard of value for the expression of price is more complex than the conception of such measures as those for weight or heat, because value and price are not inherent qualities, but are relationships between commodities which grow out of human wants and satisfactions. An article does not have value according to the amount of weight or heat it possesses, but according to the conception of its utility present in the human mind. A standard of value, therefore, is not a measure of value, but only a convenient scale by which values are expressed after their measurement has been made in terms of human desire or satisfaction. As Bourguin expresses it:[1]

"The true reason why it is not proper to speak of the measure of value is that value is not a property, a magni-

equivalent, or of money."—*Contribution to the Critique of Political Economy*, p. 75.

[1] *La Mesure de la Valeur et la Monnaie*, p. 38. The French monetary law of 1793 preserves this distinction, always referring to the "monetary unit" and never to "the standard." M. Wolowski proposed the use of the term *évaluateur* instead of *étalon* (standard), and M. Block proposes *unité de valeur* (unit of value).—*Les Progrès de la Science Économique*, II., p. 37.

tude. The franc is not the unit of the measure of value, but only the unit of the measure of money, of the quantity of silver figuring in exchanges. It is a certain physical quantity of coined silver, a piece of five grammes, which has been adopted as a unit for measuring the quantity of silver constituting the value of each article in relation to silver."

The adoption of a standard as nearly fixed as may be is of cardinal importance in the creation of a proper monetary system, but, the standard having been chosen, it does not follow that the material of which it is composed needs to be employed in all transactions based upon the standard. It is not a merely theoretical proposition that the standard and the medium of exchange are not always the same. It has happened repeatedly in monetary history. The famous Bank of Amsterdam and the Bank of Hamburg, in the seventeenth century, created a standard and common denominator in the form of "bank money," based upon a fixed weight of silver, although no coins of this weight were created. Silver and other metals were received at the bank by weight and intrinsic value and converted into bank money upon the books of the bank. Upon these books, and by means of certificates of title to bank money, were recorded the transfers of wealth in the community.

When this was exclusively the case, the bank money constituted in a sense a medium of exchange, a common denominator, and a standard of value; but in retail transactions there circulated much silver and gold which was a medium of exchange, but which was a common denominator only in a restricted sense and was hardly a standard of value at all. It was only when the medium was converted into bank money that the terms in which it was expressed became the common denominator, and the weight of silver which the bank money represented became a standard of value. Thus money transactions were consummated without the transfer of coin, and the

advantages of the system made it one of the germs of the great use of credit instruments in modern times. Money which is thus employed simply as a standard without being actually in use is designated as "money of account," and Marx correctly declares:[1]

"Money as money of account may exist exclusively in idea, while the money in actual existence may be coined according to an entirely different standard. Thus the money in circulation in many English colonies of North America consisted until late in the eighteenth century of Spanish and Portuguese coins, although the money of account was throughout the same as in England."

The use of money as a standard of value has become of constantly increasing importance in modern industrial societies. The fact that money is a common denominator has led to the expression of nearly all contracts in terms of money.[2] This makes it of the highest importance that the standard shall be invariable in value. In so far as this is not the case, injustice is likely to be done between contractors, whether the purchasing power of money rises or falls. If its purchasing power rises, independently of the increased productive power of labor, the person having money to pay is compelled to pay a larger purchasing power than he would have paid if the value of money had remained constant. If the purchasing power of money falls, the person receiving it finds that he has received less purchasing power than the amount which he expected when the contract was made.

A reasonable degree of stability in the standard is what makes it useful for measuring values at different times and places. We wish, says Gide, "to compare the values of merchandise situated in different places or to compare

[1] *Contribution to the Critique of Political Economy*, p. 88.

[2] "Money is best defined as a thing which, by common consent of the business community, is used as a *basis of commercial obligations*."—Hadley, *Economics*, p. 180.

the value of the same merchandise at different dates."[1] The importance of this certainty in the standard was recognized by Copernicus nearly four centuries ago, when he declared in his famous memorial to the King of Poland:[2]

"Money is then in some sort a common measure for calculating values, but this measure ought always to be fixed and to conform to an established rule. Otherwise, there will be, of necessity, disorder in the State. Buyers and sellers will be constantly deceived, as they would be if the ell, the bushel, or the weight should not preserve a fixed proportion."

In a country having a fixed standard the assurance exists that contracts expressed in terms of money will be discharged in a known quantity of metal of a comparatively stable value. This gives certainty to business transactions and permits large enterprises to be carried on upon a small margin of profit. Efforts have been made in several states to preserve the value of money by changing the weight of metal in the coins without changing their denominations. Such a process may affect contracts expressed in terms of money to the disadvantage of the creditor, but the effect upon current exchanges is soon offset by changes in prices. Prices rise in the proportion that the metallic money has been deteriorated, and it requires the same weight of metal as before to obtain a given article. Such changes in the weight or fineness of coins were common during the Middle Ages as a means of increasing the revenue and diminishing the debt of governments.

IV. Money is a store of value, because it enables value to be embodied in a compact commodity, generally acceptable, and capable of being kept for an indefinite period without loss. The proposition that money is a store of value is disputed by Walker and some other writers upon the ground that the metal ceases to be

[1] *Principes d'Économie Politique*, p. 90.
[2] *Monete Cudende Ratio*, p. 49.

money when it is converted into hoards.[1] This might be true in a limited sense, where coin was melted up into jewels for the purpose of a permanent hoard against old age or emergencies. Money is, however, a store of value of the highest character under modern commercial conditions. It is the one store of value which never loses exchangeability against other commodities. In the language of Bagehot, "Money is never 'second hand'; it will always fetch itself, and it loses nothing by keeping."[2] This is the reason for the great hoards of gold and silver formerly accumulated by powerful states for war necessities—illustrated in modern times by the hoard of 120,000,000 marks ($30,000,000) which is kept by the Imperial German Government in the Fortress of Spandau.

Money is not only a store of value of the highest character, but it was almost the only store of value of an exchangeable character until the creation of negotiable securities. There can be only three general classes of property having intrinsic value: (1) Consumable commodities (including raw materials); (2) fixed capital (invested, for instance, in factories, railways, and land); and (3) money. Consumable commodities cannot be hoarded without loss. Fixed capital may become useless if the demand for its products ceases or may deteriorate in value for a variety of reasons. Such capital may be represented by negotiable securities, which escape the inconvenience of not being capable of ready exchange, but they are liable to deterioration from the same causes as the fixed capital itself and for other causes inherent in the operations of the stock market. This

[1] *Money*, p. 12. Block, who takes the contrary view, cites the case of a farmer who converts 100 hectolitres of grain into 2000 francs, and declares: "The 2000 francs in the bureau do not cease to be money or available capital; they are capable of being put in circulation at any moment. Does a horse cease to be a horse while he is permitted to rest in the stable?"—*Les Progrès de la Science Économique*, II., p. 41.

[2] *The Transferability of Capital*, Works, V., p. 285.

leaves money as the only store of value which is not in danger of physical deterioration and is always readily exchangeable. While its exchange value may alter under varying conditions, it possesses much of the peculiar quality, ascribed to it even in early times by St. Thomas, of a guarantee or security for the possession of other goods, after the manner set forth by Liberatore:[1]

"For in truth money guarantees to us that we may provide for our needs whenever we wish by offering it in exchange for some other merchandise, the object of our desires."

The quality of money as a store of value has attained a new development in modern times by the use of banking credits. Banking credits constitute titles to metallic money. Both metallic money and banking credits are instruments for transferring wealth. They represent titles vested in the holders of credits to command the products and services of the community. But banking credits owe their value to their negotiable character. They are exchanged against commodities when commodities are desired, but they are capable of exchange against metallic money when money becomes more desirable than commodities.

The use of money as a store of value is important, even under ordinary economic conditions, in effecting transfers from place to place. The power to transmit money obviates the necessity of transmitting commodities where there is not an even interchange of commodities between two communities. Money then takes the place of other articles, as the most compact, invariable, and generally acceptable method of making payments. This is pointed out by Jevons in the following words:[2]

"At times a person needs to condense his property into the smallest compass, so that he may hoard it away for a time, or carry it with him on a long journey, or transmit

[1] *Principes d'Économie Politique*, p. 136.
[2] *Money and the Mechanism of Exchange*, p. 15.

it to a friend in a distant country. Something which is very valuable, although of little bulk and weight, and which will be recognized as very valuable in every part of the world, is necessary for this purpose. The current money of a country is perhaps more likely to fulfil these conditions than anything else, although diamonds and other precious stones, and articles of exceptional beauty and rarity, might occasionally be employed."

V. The use of money as a standard of deferred payments is one of the results of the development of credit in civilized societies. Contracts for the payment of money at a future time are of ancient origin, but have attained a wide development with the modern extension of trade. The reasons already stated why there should not be a change in the standard of value apply with added force in reference to contracts for deferred payments. Such contracts, made in the present with a view to the future, should be capable of certainty in a civilized state in order to make possible large enterprises looking to the distant future for their completion. As Nicholson says: [1]

"Speaking generally, every one is bound by a series of contracts or *quasi*-contracts to give and to receive certain sums of money at various future dates, and his whole industrial life depends on the fulfilment of these contracts and *quasi*-contracts. The working man expects during a certain time to receive so much money and therewith to provide himself and his family with goods. On the expectation of this demand other people provide the goods, and others the means to make the goods, and others the means to make the means, and so on indefinitely."

These operations are correctly described as "instances of deferred payments," and are seriously affected by changes in the standard. It is possible in such cases for traders to protect themselves in some measure against anticipated changes, where they are not too rapid and

[1] *Principles of Political Economy*, II., p. 94.

too arbitrary, by changing their prices. It is less easy for the wage-earner to secure an advance in the customary payment for services, where the value and purchasing power of money have been reduced. In both cases, however, there is less disposition to make contracts looking to the distant future, and thus the great enterprises which give life to modern industry are hampered.

The most common illustration of the violation of the rule of stability of value and depreciation of the standard is the cases where contracts are expressed in the lawful money of a country, based upon a metallic standard, which is subsequently changed for a paper standard. Such contracts, where not payable in specific terms in metallic money, are often held to be payable in the depreciated paper currency which has become the usual medium of exchange. This fact has sometimes led to the belief that the value of paper money could be maintained at parity with the metallic standard by making it a legal tender for past debts. This belief is based upon the theory that there will always be a demand for the legal-tender money for the discharge of past debts and that this demand will maintain its value. The investigations of Mr. Charles S. Fairchild, ex-Secretary of the Treasury, show that the use of money in deferred payments for long terms has not, even under modern conditions, attained a volume which would sustain this theory. Mr. Fairchild says:[1]

"If the census of 1890, where it is attempted to show the past debts of the country of one kind and another, be compared with the clearing-house transactions of any year, you will see that not more than four per cent. of the transactions of any single year can consist of the liquidation of debts that antedated that year; and that is a comparison simply with the clearing-house transactions, and

[1] Hearings and Arguments before the Committee on Banking and Currency of the House of Representatives, Fifty-fifth Congress, Second Session, p. 91.

we know that there is a vast body of transactions that do not appear in the clearing-house transactions at all. Therefore the liquidation of past debts is statistically shown to be relatively very small as compared with current transactions, and the final consideration is that it must be so, because out of what fund are you going to accumulate the money with which to discharge past debts? It must be that the only place from which it can be gotten is from the profits of current transactions. Therefore the current transactions must bear an enormously greater proportion to past debts."

III

THE ORIGINS OF MONEY

Not so sudden a discovery as sometimes assumed—An evolution from the segregation of private property—Money cannot exist without a surplus of capital beyond immediate needs for consumption—Hence the money quality came to be imposed upon articles of ornament rather than necessity—How gold and silver became symbols of wealth and power—The gradual emergence of these metals as the most exchangeable of commodities.

THE history of the development of money is much less simple and more interesting than the account given in early economic text-books. That money of stamped metal sprang into being in its present perfected form as soon as society began to feel the inconvenience of direct barter is a rough-and-ready conception which would not be seriously defended by any careful student, but which is almost implied in many early discussions of the subject. This theory, in its crudest form, implies that exchanges were first carried on by barter of one article for another, until it was discovered that the intervention of a third commodity, capable of subdivision and generally acceptable, would facilitate the division of the articles exchanged into the desired proportions and make exchanges easy, and that this commodity was by universal convention adopted as money. It requires but little reflection, however, to make it clear that this account of the development of money is incomplete. It sums up in a way the ultimate results of this evolution, but it passes over intermediate steps, extending over many centuries,

and it takes much for granted in the progress of economic history. The use of metals as money rests upon a firmer basis than convention, in the unconscious operation among all civilized peoples of the principle of natural selection. Money of coined metal is an evolution, not a sudden creation.

The simplest form of existence supposes that each individual shall produce all that is necessary to sustain life —that he shall kill and dress his own animal food, gather his vegetable food, and prepare his own clothing and shelter, so far as his degree of civilization suggests the necessity for these things. When human economy advanced another step, exchange came into being. In theory, at least, exchanges were first conducted by means of barter. The man who had an excess of game and a deficiency of skins exchanged a part of his game with the man who had an excess of skins and a deficiency of food. But three difficulties were discovered in this method of dealing. The man who had a brace of birds and wanted a goat-skin might find a man with the skin, but who wanted no birds; or he might find that the man with the skin wanted birds, but not enough of them to pay for the skin;[1] or he might find that the man with the skin had been in the habit of exchanging skins for deer or fish and did not know how to calculate its value in birds. Then followed the process described by Aristotle:[2]

"From this barter arose the use of money, as might be expected; for as the needful means for importing what was wanted, or for exporting a surplus, was often at a great distance, the use of money was of necessity devised. For it is not everything which is naturally useful, that is easy of carriage; and for this reason men invented among

[1] These difficulties are called by Jevons, "want of coincidence in barter"; and he declares that "to allow an act of barter, there must be a double coincidence, which will rarely happen."—*Money and the Mechanism of Exchange*, p. 4.

[2] *The Politics and Economics of Aristotle*, p. 21.

themselves, by way of exchange, something which they should mutually give and take, and which being really valuable in itself, might easily be passed from hand to hand for the purposes of daily life, as iron and silver, or anything else of the same nature. This at first had a fixed standard simply according to its weight or size; but in process of time they put upon it a certain stamp, to save the trouble of weighing, and this stamp was affixed as a sign of its express value."

While in these words of the old Greek philosopher are summed up the fundamental reasons for the use of money, they confuse into a definite and conscious series of measures what was in fact not an invention but a long process of unconscious evolution. The course of this evolution is better stated by McCleary:[1]

"By-and-by men observed that there was some article that was in such general demand that in exchange for it one could, at any time, get any other thing that he might desire. This object of general desire gradually became the medium through which exchanges were effected. A person having a surplus of anything, even if he had no unsupplied want, would take this medium of exchange, knowing that for it he could at any time supply his wants."

The acceptance of the simple theory of the sudden adoption of money as a substitute for barter departs from the actual history of social development in projecting back into primitive times the system of private property rights and organized exchange as it exists in modern times. Money was not required where domestic economy prevailed; it was not at first employed even in foreign trade; but in the nature of the case it came into most general use and served the most beneficial purposes in cities, where the division of labor permitted the organization of industry, and in foreign trade, where a medium of exchange was needed of intrinsic value and general acceptability.

[1] Report of June 15, 1898, on "Strengthening the Public Credit"; House Report 1575, 55th Congress, 2d Session, p. 13.

This progression in the use of money made great strides in the eighteenth and nineteenth centuries with the gradual extension of the division of labor and with the capitalistic organization of industry, and is still going on in the twentieth century. Every new community opened to civilization, like Africa, China, and the Philippines, creates a new field for organized exchange, and illustrates under the eyes of those now living the process of evolution of the use of money since the beginnings of civilized society.

The slow evolution of metallic money followed certain well-defined lines. It did not involve the sudden substitution of a recognized intermediary between commodities which had formerly been exchanged by barter. It involved rather the gradual evolution through barter of the intermediary which was found most generally acceptable. The means of exchange was long confounded and intermingled with the final objects of exchange. The man who exchanged grain for cattle in the heroic days of Greece might take the cattle because he wished to consume them as food or increase his herd, or he might take them with the sole object of exchanging them with some one else for a sword or a shield. In the former case they were not money in the usual acceptance of the term; in the latter case they were money. It was the same with kettles, long an object of exchange and measure of value in primitive Greek society. They might be taken for use or for the purpose of exchanging them again. When society began dimly to grasp the conception of a third and constant commodity interposed between the two halves of an exchange, it was the articles which had been found most exchangeable in barter which pointed to the selection of the wonderful substance which was to have the new and unique quality of commanding all other things. It was a natural result of this evolution that the ox, the slave, and the utensil of daily life gave their name to the coins, and that the earliest bronze money

of Italy contained precisely the same alloy of copper, tin, and zinc as the utensils which had preceded it as a medium of exchange.[1]

In this progress from direct barter to the use of a chosen intermediary of exchanges, several principles stand out, working often unconsciously, but none the less surely, because they were the inevitable consequence of simple economic laws and of the almost universal bent of the human mind. Money was no odd invention, to be played with and set aside as a curious illustration of the ingenuity of an individual. It did not come into use until there was need for it, and there was not need for it before society had an economic organization which permitted division of labor and the creation of surplus products for exchange.

A surplus of capital above the needs of current production is a prerequisite for any community which desires to use money. For a primitive people the usual tools of agricultural production, seed and live stock, are more essential than money. It is only when by these means surplus capital has been created that it can be invested in a commodity to be employed solely as a tool of exchange, just as it is only when the farmer has saved something beyond his necessary tools and seed that he can afford to invest in a well-made wagon for carrying his products to market. This principle explains in part why in many early communities the article used as money was also useful for many other purposes. Where cattle, for instance, served as money they represented in themselves a productive form of wealth. Their use as a medium of exchange did not involve the setting aside of a large amount of capital above that required for other uses. When surplus wealth accumulated in the hands of primitive peoples, it was employed chiefly in the acquisition of articles which served for ornament. These arti-

[1] Carlile, *The Evolution of Modern Money*, p. 236.

cles, however, being—in their highest form of gold and silver—articles which were generally prized for the same purposes among other peoples, it came about that they possessed the quality of exchangeability peculiarly belonging to money. Thus they served the double purpose of ornamentation and a store of value, being capable of conversion from an ornament into a medium of exchange when the need for it arose. The use in this way of the precious metals required the setting aside of saved capital beyond the implements of current production, but it economized the use of the capital which would have been required if ornamentation and the tool of exchange had been provided from independent materials and therefore from separate funds of saved capital.

The fact that the capital used as money must be drawn from accumulations beyond those required for the purposes of current production brings out the fundamental nature of the proposition, that the article which tended to become the medium of exchange and standard of value was the superfluous rather than the strictly necessary. It must be an article of universal desire in the realm where it is employed as money. Experience has shown that such a universal desire is directed towards the ornamental as much as the useful, and that the desire for the ornamental has the additional quality of being practically insatiable. The desire for any staple article of food has limits, and the production ordinarily does not go much beyond, and even falls below, the demand within these limits. A surplus of food for exchange was not a usual phenomenon in primitive societies, and only rarely could food fulfil the requirements of money. As Mommsen declares: [1]

"The commodity that becomes money must above all things not be one that is indispensable for the supply of the most urgent material needs. It is for this reason that

[1] *Histoire de la Monnaie Romaine*, Preface, p. xiv.

in no country has corn ever been used as the comparative measure of the value of other merchandise; and that mankind, after having, from the most remote antiquity, successively and in various countries employed as money cattle, iron, and copper, have uniformly ended with silver and with gold."

It is obvious that the adoption as a medium of exchange of wheat or any consumable commodity of general use would result in extreme perturbations in the value of the medium of exchange and its relation to all other articles. The surplus corn or wheat, if they were used as money, might be absorbed by consumption in any given year and this would greatly reduce the stock available for carrying on exchanges. Only some article which is not absolutely necessary for the ordinary purposes of consumption, and of which there exists a surplus stock upon the market, meets the requirements of an efficient medium of exchange.

The conception of money as a store of value followed the development of the spirit among men of prevision—care for the future. Some of the first stores of value were undoubtedly made in articles of general use, like iron, cattle, and slaves, before the surplus of savings was such as to permit investment in ornament. Such forms of capital had the defect, however, that they were not of universal desire without limit in time and amount. The desire for them as simple commodities—aside from their value as evidence of wealth—was a desire which was satiable. It became desirable that the store of value—the fund of wealth reserved against future needs—should be in an article for which the demand was insatiable. As Carlile describes the requirement of this more advanced social stage:[1]

"When the division of labor had made some considerable progress, then provision for the future would largely

[1] *The Evolution of Modern Money*, p. 236.

cease to be of this direct and simple character, and the commodity which would then best secure a man's future sustenance and well-being would not be so much the commodity best adapted for immediate utilization by himself or his dependents as the commodity which would be most efficient in securing for him the services of his neighbors or of strangers unconnected with him."

Hence emerges the vital factor in the choice of the metals as the material for money, that they represent an article for which the demand is insatiable. That is true to a large degree independently of their functions as currency. Gold and silver turned into money have the quality of commanding all other commodities. Hence the only limit imposed upon the desire for their acquisition in the case of the individual is the sum of his desires for other articles. This is true of them because they are money, but it would be true to a large degree even if they did not enjoy by legal-tender laws this peculiar function. Gold and silver among semi-civilized peoples, and even at the present day among those who are civilized, are among the most highly prized articles of ornament. It is not an accident that articles of ornament, seemingly useless in themselves, have been used as money under widely different conditions among barbarous, semi-civilized, and civilized peoples. The desire for ornament, for superfluous wealth, is from the stand-point of the economic man a desire which is insatiable. No man, at least the man governed purely by theoretical economic motives, fears becoming too rich. Money in its abstract sense stands for riches. In barbarous societies it was the article used as money in its concrete sense which was at once the symbol and the substance of wealth. Many are the cases recorded in the history of barbarous peoples where wires, shells, and similar articles served the common purpose of ornament and of money. In the words of Babelon:[1]

[1] *Les Origines de la Monnaie*, p. 248.

"Wherever one comes across man on the surface of the globe, one finds at the same time that it is the superfluous which by instinct seems to him the most necessary. Man has scarcely learned the use of clothes before he hangs around his neck, on his arms, on his legs, and in his ears, nécklaces, bracelets, rings, and pendants of every shape, in the manufacture of which the precious metals are always and everywhere preferred."

In India and China, where primitive economic conditions still to a large extent prevail, the common method of hoarding wealth is in the form of coins strung into bracelets and ornaments. These articles can be readily used as money in times of famine or special need.[1] From this primitive instinct for the superfluous signs of wealth has sprung the universal desire for ornament—not from its intrinsic utility, but as a mark of social distinction and personal leadership. The millionaire, who goes on piling up wealth after he already has enough to command every bodily comfort, is actuated by the same motive which governs the East Indian or the Chinaman who hoards silver and gold that he may be known as the richest and most powerful among his fellow-men.

The scarcity of silver and gold has from the earliest times made their possession the symbol of wealth and power. Hence they have been eagerly sought by all who have desired leadership in its tangible form of wealth or in the form of political and military prestige, to which the possession of means is so necessary an incident. The desire for the metals became coincident with the desire for all other things in primitive times, and, therefore, practically without limit, because the metals were ex-

[1] "The women of the tribes on the borders of Thibet are always ready to use portions of their silver ornaments in making their purchases. At the same time, whenever they get any money the first thing they do is to buy more ornaments with it. The ornaments are their medium of exchange and their store of value."—Carlile, *Economic Method and Economic Fallacies*, p. 163.

changeable for all other things. The search for the precious metals, both for ornament and money, was an early stimulus to foreign trade. Hauser declares that it was for gold as much as for grain that Athens assumed control of the Milesian colonies and that she founded new ones in the Crimea, in Thrace, in Epirus, in Thessaly, in Macedonia, and at Thasos. She scattered over the shores of the sea her drachmas of silver, extracted from the mines of Laurium, and exchanged them for the gold of Siberia and of the Ural. The Phœnicians founded many colonies in the west in order to be near the mines. How actively their quest for gold stimulated on both sides their traffic with the barbarians, he thus sets forth: [1]

"They received it from the Arabian caravans, which traversed the desert with their camels; they went in search of it in southern Egypt, then in the country of Ophir, perhaps at Zimbabye, and it was in trading from place to place with their stuffs of purple and of glass, that, a thousand years before Gama, they are said to have doubled the Cape of Good Hope. Tyrians, Sidonians, and Carthaginians sold also the gold of Spain to that people of metallurgists, goldsmiths, and jewellers, the Etruscans, who transformed it into delicate filagrees and graceful and enduring trinkets. They sold it to the Gauls, greedy, like all barbarous peoples, for gold. To buy a little gold in the Phœnician or Greek markets of the Mediterranean, to decorate their arms and limbs with bracelets in battle, the Gallic charioteers traversed with their heavy chariots, over trails scarcely marked, the thick Celtic forests, and crossed the channels of Great Britain to seek the tin of the Catterides or sought even farther the amber of the Baltic."

Local wants or national prejudices might give to a certain article the character of money at home, but only an article of universal desire would serve the purpose of ex-

[1] *L'Or*, p. 288.

change abroad. Such an article was afforded in primitive times by anything which appealed to love of ostentation. Hence it was that the Phœnicians found a ready market for their brightly colored cloths, necklaces, rings, and other ornaments among savage peoples. But among these peoples, as among those more advanced in civilization, gold and silver became the highest form of wealth. They had the advantage of being easily concealed, if there were need of it, and of being transformed from money into ornament and ornament into money, according to the exigencies of private and public fortune. German writers in the Middle Ages point to the wealth of the German burghers as illustrated by their rich possessions of gold and silver plate. One of the best-known writers of the time mentions that "the merchants eat off dishes of pure silver and gold." The coins of that time were often debased and of uncertain value, and, as Schoenhof aptly declares, "Private hoarding in this form is the natural consequence of such a state as existed in the Middle Ages."[1] Plate could readily be converted into money, or into bullion, the equivalent of money. The possession of plate had, in the average mind, a much closer connection with its use as money a few centuries ago than at present. Sir Dudley North declared that "if every one had plate in his house the nation would then be possessed of a solid fund in these metals which all the world desires." Jean Bodin alludes to a proverb current in his time in France, "that in plate one loses nothing but the fashion," and Lord Burleigh in his will left his plate to be distributed among the legatees by weight, just as if it was so much bullion.[2]

The choice of a single material to serve as money was the unconscious elimination of less desirable means of exchange until the most desirable was found.[3] The pro-

[1] *A History of Money and Prices*, p. 80.

[2] Carlile, *The Evolution of Modern Money*, p. 247.

[3] This principle is recognized by Pantaleoni, that "the choice of

ducer of an article having a very limited market would naturally be willing to exchange it for an article more generally desired, even though it were not in itself the unit of exchanges. This principle of selection was well defined by Torrens as early as the beginning of last century: [2]

"Every person would find it his interest to keep constantly by him, some commodity, which being of known value, and of universal consumption, would be readily received by his neighbors in exchange for the produce of his industry. Now when men had seen this commodity frequently employed as the means of exchanging other commodities, they would become willing to receive a greater quantity of it than was necessary for their own consumption, under the confidence, that whatever articles they might require could at any time be procured for it."

Degrees of exchangeability at a given moment vary within the widest limits. At one end of the scale of exchangeability in modern times might be placed unimproved land in the country or a rare work of art; at the other end, aside from actual money, might be placed the securities of first-class governments. Degree of salability at short notice at an economic price—a price giving fair returns for cost — marks successive articles in the approach towards those which are most exchangeable. Thus it happened that several articles which were objects of general desire might serve as rude tools of exchange at the same time in the same community. Iron, having many uses, obtained a high place as a medium of exchange in the heroic ages. Caesar found iron and copper bars in use as money in Brittany, and they are still used

one determinate thing, in preference to many other possible things, as a medium of exchange is effected—like the choice of any other direct commodity, among many possible ones, for the satisfaction of a direct want—by *natural selection*."—*Pure Economics*, p. 225.

[2] *Money and Paper Currency*, p. 5.

in Cambodia and Thibet. Among the Kaffirs iron lances were long highly valued as money. The general desire for cheap fabrics and decorations among barbarous peoples who have begun to trade with civilized nations has often been noted. It made the fabrics and ornaments of Tyre a form of money in the hands of her traders in dealing with the people of Africa.

All these facts point to the gradual recognition of the principle laid down by Menger, that "the commodities which under given local and time relations are most salable, have become money among the same nations at different times and among different nations at the same time." [1] The material of money in its earliest forms was simply the most desirable object of barter. "The precious metals," in the language of De Greef, "were themselves merchandise entering into the general system of barter before being devoted to their special functions as measures of value and intermediary of exchanges." [2] But a long process of evolution was traversed before the precious metals, even by weight, became the standard, and another long process before private marks of weight and fineness developed into official coinage. The process of this evolution is well set forth by Bullock: [3]

"In this way the universally acceptable commodity acquires a new and distinct use. Hitherto it was valued simply as an object of personal consumption; now it is demanded also as a means of facilitating exchanges. Formerly it was a common commodity; now it is a peculiar commodity possessing a special function — namely, the function of serving as a general medium of exchange. Whenever a commodity acquires this function, it becomes money."

[1] "On the Origin of Money," in *The Economic Journal* (June, 1892), II., p. 252.

[2] "La Monnaie, le Crédit et les Banques," in *Annales de l'Institut des Sciences Sociales* (1897), III., p. 225.

[3] *Introduction to the Study of Economics*, p. 211.

The respect in which the precious metals differ from other commodities is one of degree and not of kind. They possess the highest degree of exchangeability. Gold and silver have become in developed commercial countries the material of money by the operation of a branch of the law of marginal utility—the law that the object most useful for a given purpose in any community will gradually exclude the use of other objects. The evolution of money began with the perception of degrees of salableness of commodities. Perishable goods and those of limited consumption are "merchandise" in the sense of being readily exchangeable, only for the interval that they are in the hands of the dealer. "Money," says Favre, "consists at the beginning in objects which might become merchandise. Its mobility is beyond doubt, but that which distinguishes it in a decisive manner from merchandise is the character (admitted in theory, if not a reality) of perpetual movement and absolute mobility—which exists of itself and not for a transitory period." [1] In the natural contest for such a service the precious metals prevailed by a process of economic selection which Menger thus described: [2]

"With the extension of traffic in space and with the expansion over ever longer intervals of time of prevision for satisfying material needs, each individual would learn, from his own economic interests, to take good heed that he bartered his less salable goods for those special commodities which displayed, beside the attraction of being highly salable in the particular locality, a wide range of salableness both in time and place. These wares would be qualified by their costliness, easy transportability, and fitness for preservation (in connection with the circumstance of their corresponding to a steady and widely distributed demand), to ensure to the possessor a power,

[1] "La Genèse de l'Argent," in *Revue d'Économie Politique* (April, 1899), XIII., p. 362.

[2] *Economic Journal* (June, 1892), II., p. 248.

not only 'here' and 'now,' but as nearly as possible un limited in space and times generally, over all other market goods at economic prices. And so it has come to pass, that as man became increasingly conversant with these economic advantages, mainly by an insight become traditional, and by the habit of economic action, those commodities, which relatively to both space and time are most salable, have in every market become the wares, which it is not only in the interest of every one to accept in exchange for his own less salable goods, but which also are those he actually does readily accept."

Money, therefore, has attained its present position as a tool of exchange by a process of evolution from less exchangeable commodities. It was, as Menger declares, "the spontaneous outcome, the unpremediated resultant of particular, individual efforts of the members of a society, who have little by little worked their way to a discrimination of the different degrees of salableness in commodities." Modern political economy tends more and more to appreciate such evolutions rather than to apply abstract standards in the judgment of past ages. It is not surprising, in view of the universal exchangeability of gold and silver, that they were considered, at the dawn of modern commerce, when paper titles were less secure than at present and credit had not reached its full development, as the most desirable form of wealth. Money was for the individual the highest form of wealth, and by a natural error the mercantilists regarded it as the great object of national accumulation. It remained for the modern age to fully accept the view that money, while the most exchangeable form of wealth, is by that very fact the tool of exchanges and not their object.

The conclusive evidence that exchangeability is a vital requirement in money is afforded by reversion to barter or to the estimation of money by weight which has occurred when the standard has been too much tampered with. It was noted by Adam Smith that money was re-

ceived at the exchequer by William the Conqueror by weight and not by tale, and there is reason to believe that payments were made in this way up to the time of the reform of the coinage in the time of Elizabeth.[1] All through the Middle Ages experience verified the maxim of Nicholson, that "most governments have found when they tried to enforce an unpopular change in the standard (to benefit, for example, by fiat money) that the people have resorted to bargains on the old standard."[2]

Midst the bewildering debasements of the French coinage under Philippe le Bel contracts escaped recurrence to pure barter by stipulating for gold or silver of the weight and value of the time of St. Louis. Public opinion adhered to the opinion that money was merchandise and that if the government issued debased pieces they should be received only at their intrinsic value. The princes had not the means they would have had at the present day for forcing their debased pieces into circulation, and their frequent alterations of the coinage, instead of affecting the entire economic system, had only the character of a local bankruptcy, at places where the new pieces were paid for public obligations.[3]

On many occasions where paper money has been forced into circulation to excess and made legal tender by law, the same phenomenon of recurrence to barter or to contract for delivery of the precious metals by weight has demonstrated the fundamental conviction of merchants that money was a commodity deriving its value from the material of which it was composed.[4]

[1] Rogers' edition, *Wealth of Nations*, I., p. 27.

[2] *Principles of Political Economy*, II., p. 101.

[3] Avenel, pp. 52, 53.

[4] This was the case with the Rhode Island paper money of 1786. McMaster says that the traders "closed their shops or disposed of the stock by barter. For a time business was at an end, and money almost ceased to circulate except among the supporters of the bank. Rent was paid in grain; nor was it by any means, in some towns, a rare thing to see cobblers exchang-

Organized exchange, therefore, by the use of money has followed an evolution which has been slow and is not yet complete. Upon some of the steps of this evolution light is thrown by a cursory glance at economic history. Primitive society, even that of the Middle Ages, had little use for money while the household and the community were self-sufficing. This was the system which prevailed to a large extent in Greek and in Roman society, even after the creation of cities and the development of international trade had opened certain markets for coined money. How different was the financial organization of society under such conditions from the modern capitalistic system is thus set forth by Bucher: [1]

"That which in modern theory it is the custom to call 'circulating capital' is in the system of household economy only a simple fund in process of use which awaits consumption. It is a product unfinished or only half finished. In the regular course of this economy there exist neither merchandise nor prices, neither circulation of goods nor distribution of income, and hence (as special forms of income) neither wages, nor the profits of management, nor interest."

It is not improbable that the material found most acceptable in exchange and as a badge of wealth was employed at first for the payment of fines, taxes, and religious contributions rather than for the purchase of necessaries. Food and shelter, indeed, probably remained the common property of the community in primitive society until after the idea had begun to take form that the right of private property could be asserted in

ing shoes for meat, and shopkeepers taking cords of wood for yards of linen."—*History of the People of the United States*, I., p. 333.

[1] *Études d'Histoire et d'Économie Politique*, p. 75. A striking proof of the differences between the ancient economy and the modern is found by Bucher in the fact that even the names are lacking in early Latin and Greek for modern financial conceptions. *Merces* is used indiscriminately for wages, rental, interest on capital, and price.

arms and ornaments. As distinction in these respects was a means of attracting women and commanding the envy of men, it is not unlikely that ornaments were employed in obtaining wives, and that the marriageable daughters of a family were the first objects of exchange.[1]

From the moment that money became known, its possessor enjoyed, even in communities where its use was not widely spread, the benefits naturally belonging to a commodity which commands all others. In Egypt, where payment of taxes in kind was maintained even under the successors of Alexander the Great, the tax-farmers took the produce off the hands of the farmer and contracted for a money payment to the state. Thus the tax-farmers, as Cunningham declares, "came in as speculators in raw produce; their intervention facilitated the collection of a money revenue without compelling the peasant to pay in money." [2]

The high utility of money resulting from its peculiar qualities gave great power in ancient times and in the Middle Ages to those who possessed it. The possession of circulating capital and actual metallic money—too often confounded by careless students in modern times—were almost necessarily the same thing under economic conditions where there was no other means of storing value in a negotiable form. Hence the possessor of money had a lien upon the possessions of his neighbors which was much more strongly felt than even under the acute conditions of modern industrial competition. In the Roman Empire it was the farmers of the taxes and the money-lenders who were the men of power. In the provinces in the declining days of the empire the land-owners, unable to pay the accumulating taxes, could borrow only from the men whose relations with the official classes

[1] *Con.* passages from Schurtz, quoted by Carlile, *Economic Method and Economic Fallacies*, pp. 148, et seq.

[2] *Western Civilization*, I., p. 129.

and the tax-gatherers put them in command of ready money.[1]

When the system of slavery was succeeded in the Middle Ages by the occupation of the lands of the west by the Goths, Vandals, and the Germanic tribes which overran the Roman Empire, the subdivision of labor in the family group continued to obviate the need for money. Local groups aided each other in work too heavy for a single group, and the feudal system brought an enlargement and consolidation of the family group, and thereby continued a sufficient subdivision of labor, without creating the need for formal exchanges between groups.[2] Gradually, no doubt, the field of exchange extended as certain raw materials came to be needed for spinning and weaving, and as a surplus of production permitted the exchange of this surplus for foreign luxuries. But throughout antiquity, and even down to the nineteenth century, the principal exchanges in foreign trade were exchanges of superfluities and luxuries—not exchanges of necessary food or of the raw materials and finished products of staple manufactures. They were events touching only the surface of the organization of domestic industry—not reaching down to its depths, like the organized foreign trade of the nineteenth century.[3]

The function of the state in the beginning was to give the stamp of honesty, weight, and purity to the metals which had before been transferred by weight or by the guarantee of individuals. This function would not have been effective in creating money if it had been abused at its birth.[4] It was because of the credit which was given to the metal by the government stamp when it certified to the truth that it became possible to abuse

[1] Dill, *Roman Society in the Last Century of the Western Empire*, p. 266. [2] Bucher, p. 54. [3] *Ibid.*, p. 71.

[4] "This essential point has not been emphasized enough—that if, in the beginning, the imprint had not been scrupulously honest, it would not have created money."—Block, II., p. 36.

this credit in later centuries to certify to falsehood. Up to the first employment of money coined by the state, the process of evolution is well described by Babelon, who has studied so profoundly the origins of the medium of exchange: [1]

"From the moment that the standard or measure of value became at the same time a real equivalent, it is natural that all peoples in the progress of their civilization should have sought a standard which was a more and more perfect equivalent. It has been without scientific calculation, directed only by the commercial necessity of giving in payments the exact value of objects and by the innate instinct of progress, that they have abandoned defective standards for the adoption of others less special and more convenient. Step by step this research, everywhere pursued, has led all by different routes to the same result—the adoption of gold and silver. After exchanges in natural products came cattle-money, then utensil-money, then iron, copper, gold, and silver counted by weight; finally, money of copper or iron, which in the last resort yielded its place to money of silver or gold. Such was the gradual and progressive march followed in the entire Greek world and in ancient Italy by the standard, the equivalent of all things which are sold or bought."

We find money, therefore, developing by a long process of evolution, step by step with the progress of society. Originating in the need for a common denominator of other exchanges, the article upon which fell the final choice of each local society was that which was gradually selected from other commodities as the most exchangeable. This choice inevitably fell, unless diverted by special circumstances, upon those articles which were sought as the visible evidence of wealth, above and beyond that required for the needs of daily subsistence, and therefore upon articles for which the demand was not

[1] *Les Origines de la Monnaie*, p. 230.

limited by the wants of the body, but, through the ever-expanding wants and ambitions of civilized men, was a demand insatiable in its nature, unlimited in time or space. Inevitably the precious metals emerged from the body of all other commodities as conforming best to these requirements in character and meeting best the conditions of an efficient tool of exchange. Society, having found such a tool, as it acquired the command over iron and stone through generations of travail and blind groping to adapt means to ends, stood at last upon the threshold of modern industrial development, fully equipped for the division of labor, the accumulation of capital in a transferable form, and the freedom of the individual to contract for goods and services in money instead of being bound by personal servitude to the land or the work-bench. Money, therefore, stands forth, along with a few other steps in the evolution of society, as one of the most potent of the factors of our modern industrial civilization.

IV

THE EVOLUTION OF METALLIC MONEY

Early foreign trade consisted largely of barter—Use of cattle as money in early Greece—Adaptation of money types to local conditions—The use of kettles in the heroic ages—The Spartan money of iron—Gradual evolution of state coinage—Theories as to the inventor of coined money—Conflicting claims of Lydia and Ægina — Rapid extension of the use of money among the civilized peoples of antiquity.

IN the last chapter has been set forth the philosophy of the gradual adoption of coined pieces of gold and silver as the medium of exchanges in civilized states; it remains to discuss briefly the actual evolution of the use of money within historic times and in times prehistoric so far as light is thrown upon them by the enduring testimony of utensils, coins, and monuments.

The earliest communities apparently lived upon the communistic basis, obtaining and using food in common. When property rights emerged from these conditions, it is probable that accumulation of private property first began in the form of articles of personal adornment. These came to possess an attraction to savage eyes which gave them a high marginal utility in exchange, in spite of their comparatively low utility in the scale of objects necessary to sustain life.[1] The first objects of this sort, like shells, pieces of metal, pearls, and teeth of animals, had currency chiefly within the tribe. It was only as objects came into use which were found accept-

[1] Favre, "La Genèse de l'Argent," in *Revue d'Économie Politique* (April, 1899), XIII., p. 361.

able by other tribes in mutual exchanges that an international money became possible. Trade between tribes involves long strides beyond primitive conditions, because it implies the production of valuable goods in excess of domestic needs, the respect for inter-tribal rights, and the organization of a system of exchange.

There was an obvious advantage in barter in the conduct of commerce between different peoples in ancient times, as there is in the foreign commerce of to-day, in the fact that it permitted a vessel to go both ways with a full cargo, instead of going loaded in one direction and returning with nothing but a quantity of gold or silver. Even to-day, in the language of Babelon, "The African caravans, those ships of the desert, which bring to the ports of the sea-coast the natural products of the interior, return equally loaded, not with pieces of gold, but with the merchandise which they have received from Europeans in exchange for that which they have delivered." [1] The commerce of the Phœnicians was substantially of this sort of barter. Taking out from Tyre and Sidon stuffs of purple, glass, and jewels, they brought back in exchange the natural products of Africa, Spain, and Gaul, and sometimes slaves captured in war.

Exchanges of goods were necessary, almost from the most primitive times. Under the walls of Troy the Greeks bought wine from Lemnos, paying for it with copper and iron, with hides and cattle. The great fairs of antiquity and the Middle Ages permitted large exchanges of goods by barter, with the intervention of only limited amounts of money. The Hanseatic League established *comptoirs*, or magazines, all over Northern Europe in the fourteenth century, where great quantities of goods were stored for exchange. At Novgorod, in Russia, it was forbidden by the laws of the league to pay money for balances, but they must all be settled by the delivery of Hanseatic goods.[2]

[1] *Les Origines de la Monnaie*, p. 17.

[2] Blanqui, I., p. 205. Roscher declares that in Rhokand until

The Greeks of the Homeric times gradually tended to cattle as their standard of value. Prices and charges were fixed in cattle among them, as among nearly all peoples leading a pastoral life. A woman slave who was a good worker was worth four oxen. Comparing the arms of Glaukos to those of Diomedes, Homer says that the first were worth 100 oxen and the others only nine. Parents who sold their daughters to their husbands received a certain number of heads of cattle. The laws of Draco fixed fines and rewards in oxen. For killing a wolf, one received an ox or a sheep. From this general adoption of cattle as the unit of exchange came the names of the first Greek money.[1] The word for cattle became synonymous with money, and in the times of Æschylus it was a proverb, regarding the man whose silence was bought with money, that he had "an ox upon his tongue." The Greek peoples were not the only ones where the name of cattle or the herd became by extension the term for money. The Sanscrit word *roupa*, the basis of the modern rupee of India, is derived from the word for herd (carried into French as *troupeau;* English, *troop*). At Rome, also, in the early days of the monarchy, cattle were the standard of value, and one ox was equal to ten lambs. For small offences fines were imposed of two sheep, while in graver cases the maximum might rise to thirty oxen.

The evidence of etymology goes far to sustain the contention of Ridgeway that the ox or cow was the unit of value in primitive pastoral societies.[2] The Latin word

the end of the eighteenth century, as the result of barter, the cities "presented the appearance of a fair the whole year round." —*Principles of Political Economy*, I., p. 340.

[1] Ridgeway maintains that the Attic "talent" was the equivalent in value of an ox, whence the identification of the talent with oxen in the laws of Draco and the interchangeable use of the terms ox and talent for the monetary unit. — *The Origin of Metallic Currency and Weight Standards*, pp. 6–9.

[2] *Ibid.*, pp. 47–53. Substantially the same view is taken by

pecus, meaning cattle, became the equivalent of money, and the root of the word *pecunia*, from which is derived the English word *pecuniary*. Among the Romans the counting of cattle by the head, and the fact that herds were synonymous with riches, laid the basis of the modern use of the word *capital*. In Germany the laws of the barbarians made cattle the money standard, and the word signifying a herd (in German, *Vieh*) became the basis of the Anglo-Saxon word fee, in the sense of a salary. In Ireland payments were made by horned beasts, and a woman slave was estimated to be worth three cows. Even in countries where cattle had lost much of their original value in use, the ox or cow continued to occupy a peculiar position, indicating that it had once been the chief representative of wealth. In Egypt, says Ridgeway, "their ancient esteem for the cow as one of their chief means of subsistence survived only in religious observances. So, too, in modern India the reverence for the sacred cow, among a people who regard as an abomination the eating of beef, is a survival from the time when in a more Northern clime cattle formed the principal wealth of their forefathers." The use of the cow unit was so well established among the ancient Hindoos that separate values were put upon calves and heifers of different ages, but these values all had fixed relations to each other.

Other objects of exchange were employed among people who had not large pastoral wealth and who were compelled to live by hunting and fishing. In Iceland an edict rendered as late as 1413 established a schedule of prices in dried fish, twenty horseshoes being worth twenty fish; a pair of woman's socks, three fish; a half-pound of lard, five fish.[1] Furs and skins fulfilled the mission of money around Hudson's Bay during the years of the pre-

Lenormant, one of the highest authorities on the subject.—*La Monnaie dans l'Antiquité*, I., p. 74.

[1] Babelon, p. 8.

dominance of the Hudson Bay Company, and among the natives the same word, *raha*, signified at once a skin and money. In Russia skins were used in the Middle Ages for money, and the word *kung*, money, means marten. "By degrees," says Roscher, "it came to pass that instead of whole skins only two 'snouts' were given or other pieces of leather about a square inch in size, which were probably stamped by the government and redeemed in whole skins at the government magazines."[1] The Mongolian conquerors would not recognize this symbolic money, and it became valueless.

Tobacco was the standard of value in Virginia in the early days of the colony, and even down to a recent time squares of pressed tea were the unit in parts of China. The Indians of the United States and Canada employed *wampum*, which was made by the combination of two shells gathered upon certain shores of the Gulf of Mexico. The black or violet had double the value of white shells. This wampum money was adopted even by the white colonists as token money and served as a legal tender in Canada and other provinces until 1670. It was often used by general consent after that date, and the Indians did not give it up until early in the nineteenth century. A severe shock was given to the security of the monetary system when some European manufacturers set to work to counterfeit wampum by bits of glass, which even among the Indians quickly depressed its purchasing power. Salt has been often employed as money and is still a favorite currency in central Africa. It is carried by the caravans into the interior, increasing in value according to distance from the sea. Four heavy bars, of the length of the arm and hand, two hands in breadth and a hand and a half in thickness, make the load of an ass. In Timbuctoo it requires nearly a dozen of these bars to buy a slave, but in other sections three bars are

[1] *Principles of Political Economy*, I., p. 352.

sufficient. Slaves are also employed as money in Africa, but often as a standard, or money of account, rather than as the actual medium of exchange. This conventional value of the slave in the Soudan is about 100 francs ($20), and when a cavalier says that a horse cost him three slaves he is quite as likely to refer to the slave as a standard as to imply an actual transfer of slaves.[1]

Several steps may be traced in the evolution of money. First, there was simple barter; second, there was a tendency towards the adoption of a common denominator in the form of a single article, like an ox or a sheep; third, there was the employment of metal in the form of bars or utensils either by actual weight or the use of certain pieces of metal by tale, or number; fourth, there was the imprint of the private mark of some merchant or coiner highly respected for his honesty; and, finally, there was the certification of the value of the money by the state. There was not in any of these processes the assumption of the right of the state to create money by its stamp in contravention of its actual value in exchange as fixed by the evolution of society.

The article used as money in each community has been an article adapted to its degree of civilization and highly prized as a commodity. Such articles have not often been chosen by chance, but have conformed to the monetary conditions of the time. A correspondent of the French Colonial Union, which began in 1898 the collection of examples of the primitive money of Africa, wrote that the monetary types employed there combined almost always these three conditions: (1) The product invested with the money function exists in abundance on the market; (2) it is of current consumption and its value is preserved by the relative equilibrium of production and consumption; and (3) it is capable of minute subdivision, at least to the point of adaptation to the smallest trans-

[1] A. de Foville, in *L'Économiste Français* (August 27, 1898), p. 278.

actions.[1] Gold in powder or grains is the medium of exchange in certain privileged regions, but it is too costly a medium for the miserable tribes of interior Africa. They use cowries, or shells, of which it requires 20,000 to equal the value of twenty francs ($4). The use of pieces of bullion and utensils of metal for money was the third stage in monetary development, coming after barter and the use of more destructible natural products, like domestic animals and grain. Says Babelon:[2]

"The choice of the standard merchandise varied according to the places and manner of living and was dictated only by considerations of convenience and facility of employment. This principle, revealed by observation, received a no less rigid application in societies which had passed the first degrees of material culture and in whose midst the division of labor had already led to the creation of different bodies of trades. As soon as industry was sufficiently developed, alongside pastoral and agricultural life, for the working of the metals to be known and for their employment in the making of utensils, tools, arms, and ornaments, it was very quickly remarked what advantages they offered, whether worked or not, as the intermediary of transactions and a convenient merchandise standard."

One of the reasons for the transition from cattle and agricultural products to the metals as the medium of exchange was the development of international trade. Such articles as oxen and grain, which passed very well in domestic exchanges, were not easy of transportation and were not always acceptable to foreign traders. The metals came into play as a convenient merchandise for exchange against the manufactures of Tyre, even before they were directly used as money. Tin, copper, silver, and gold were recognized as of high value as soon as the

[1] A. de Foville, in *L'Économiste Français* (August 27, 1898), p. 277.

[2] *Les Origines de la Monnaie*, p. 33.

means of working them were discovered, and perhaps of higher value at Tyre, where manufacturing processes were well advanced, than among the pastoral tribes of the Greek peninsula. The indestructible character of the metals, their capacity of being divided into any desired fractions without impairing their value, their ease of transportation, and their manifold uses in a partially developed and military society, might naturally have suggested their employment as a medium of exchange. They worked up readily into knives, spears, rings, cooking utensils and jewels, which were in themselves objects of general desire, without destroying their value if converted back into bullion. Among the Homeric Greeks kettles of various sizes and tripods of metal were often used in exchanges and as presents. They were evidently collected as the symbol of riches, as cattle and sheep had formerly been. The owning of them was an evidence that one had a great crowd of clients who had to be nourished at his table.

In Egypt in ancient times the metals were cast into crude rings and bolts, which were known as *tabnou*. These *tabnou* came to be partially marked off in advance into regular lengths, so that they could be broken off to meet the varying demands of exchange. The Egyptians followed the weight system in determining the value of their money, and their monuments bear many illustrations of the money-changer or the merchant weighing out the rings and bolts of money metal and cruder pieces which had not been thus marked. The weights put in one side of the balance testified to the evolution of money from the herd, for they were cast in the figures of oxen, heads of oxen, deer, and other animals. The *tabnou* weighed from ninety to ninety-eight grams and was the standard for most Egyptian transactions. The great inscription of the Temple of Karnak recounts that Thothmes III. received from the Chetas of Syria 301 *tabnou* of silver in eight rings, every ring weighing about

3612 grams and worth thirty-seven or thirty-eight *tabnou*.[1]

"The merchant weighs and measures the grain," was a well-known Assyrian text, which indicated that weight was the standard by which the value of money was determined in Assyria. The Bible is full of expressions showing that money passed by weight. The shekel itself was originally a measure of weight.[2] When Abraham purchased a tomb for Machpelah, he "weighed to Ephron" 400 shekels of silver, "current money with the merchant."[3] This was a recognition both of the weight and fineness of the metal. Large amounts, expressed in gold and silver talents and sometimes in talents of lead, copper, and iron, were in heavy bricks. Metals cast into jewels were often delivered by weight in money payments, as Rebecca received a ring of gold of the weight of half a shekel and two bracelets of the weight of ten shekels. The rings of gold given to Job by his friends were the sort of rings in use as money.[4] Often the precious metals circulated in the form of dust or powder kept in purses. There were public officials in Egypt and among the Hebrews specially charged with testing the accuracy of the scales in which money was weighed.[5] The Greeks and Romans had public weighers, those of Rome being called *libripendentes*.

[1] Lenormant, *La Monnaie dans l'Antiquité*, I., p. 103.

[2] "And thy meat which thou shalt eat shall be by weight, twenty shekels a day."—Ezekiel, iv., 10.

[3] Genesis, xxiii., 16.

[4] Ridgeway denies that "ring money" was "a true currency, circulating like the stamped money of later times." He says that "the truer view seems to be that these rings, whether employed by the ancient Egyptians or the prehistoric inhabitants of Mycenæ, the Kelts or Teutons, were nothing more than ornaments and passed in the ordinary way of barter, having a recognized distinct relation to other forms of property, such as cattle and slaves."—*The Origin of Metallic Currency and Weight Standards*, p. 35. But the researches of Lenormant and Babelon seem to show that such rings were used as a medium of exchange and especially marked for the purpose; *vide* Babelon, p. 52, et seq.

[5] Babelon, p. 66.

Long after the use of coined money had become general in the Greek world, bars of iron were still employed at Sparta by authority of tradition and the laws of Lycurgus. This money remained in circulation until the Medic wars (about 450 B.C.). Among the fables circulated in regard to it was the statement that it was rendered brittle and unfit for any other use by heating red-hot in the fire and dipping in vinegar. The pieces were heavy bars of the weight of a *mina* of Ægina.[1] In Rome also heavy bars of bronze were used as money alongside of the more precious metals. When Epaminondas died at Thebes he was so poor that there was found in his house nothing but an old bar of iron. Coined money had long superseded such a medium of exchange at Thebes, and this could only have been a souvenir of the early days of Greece. It was not unusual to hang up in the temples these relics of the early times. Pheidon, king of Argos, who was credited with the invention of money, withdrew from circulation the old bars of iron and consecrated a certain number as a votive offering in the sanctuary of Hêre at Argos. In the time of Aristotle these ancient relics might still be seen, clothed with a religious character, like the bars which King Periclytus deposited in the Temple of Delphi after the establishment of coined silver money in Tenedos.

The Chinese in the early years of the nineteenth century used gold and silver only by weight. It was never coined, but passed as merchandise, whose weight and fineness must be tested at each exchange. Even to the present time in China there is no legal money except that of

[1] It is not to be inferred that gold and silver were unknown in Sparta or that they were not highly esteemed. The historians tell of generals and chiefs bought with gold and citizens who were famous for their riches of gold and silver, and even certain fines were fixed in gold and silver; but the metals passed by weight, and bars of iron were the legal money of domestic circulation. *Vide* Theureau, p. 19.

copper alloyed with tin. The bankers put their personal mark upon bullion issued by them or passing through their hands. Says Babelon:[1]

"Sometimes this individual imprint, a simple indication of origin or place of production, inspires sufficient confidence to dispense with the verification by touchstone of the character of the alloy. The facility with which the public and the merchants accept the bullion which comes from a particular banking or commercial house depends upon the honorable fame of the house, but no one is obliged to extend such confidence. Public authority never intervenes, either to force an individual to accept any particular bullion or to guarantee the weight or alloy."

Only gradually, as we shall see when discussing the subject ot coinage, did the function of coining money become essentially a prerogative of the state. If it has been found wise to delegate to the state the power of stamping money, it is for the same reason that other powers have been delegated which might have been left open for the individual members of the community—the advantages of uniformity and public convenience. The power of stamping money, therefore, is no essentially royal or official prerogative, and confers no more right to affix a false stamp or to attempt to create money out of things without value than the power delegated to the state to regulate measures of weight and bulk confers the right to fasten the name of pound upon the ounce or the title of quart upon the pint. The essential feature of the evolution, which in comparatively modern times has transferred to the state exclusive control of coinage, is the subdivision of labor—the delegation to a public officer of the function of weighing and testing money which, under

[1] *Les Origines de la Monnaie*, p. 40. Lenormant suggests that the necessity for a conventional coin is greater for small amounts than for large, which can well be settled by weighing gold and silver.—*Monnaies et Médailles*, p. 13.

the systems of payments in bullion and even of private coinage, had to be performed by each person for himself. In the successive steps of the evolution of money thus far traversed, the essential fact stands out that the article sought as a medium of exchange was also a thing of value in itself. The article may be suitable for food or the processes of production, or only for ornament, but it has almost always been a thing which men sought for independently of its monetary use. It has been, in the words of Babelon, "a real equivalent," and justifies his conclusion that "metallic money, the ordinary instrument of exchanges, is of value only for the quantity of precious metal which it contains." [1]

We now stand at the threshold of the use of coined metal, bearing the official certification of its weight and fineness by the stamp of an authority known and trusted by all. The extension of commercial relations and the uncertainty and frauds which attended the delivery of the precious metals by weight and bearing private marks led to the desire for a medium bearing its own certificate of weight, fineness, and value which could be passed freely from hand to hand. Then came what Lenormant has described as "that fertile innovation, true invention of genius, which transformed this cash equivalent, still so imperfect, into money." [2] But it has already been seen that the creation of money was an evolution, not a sudden inspiration. The state was appealed to, as in many cases in the modern world, to perform a function capable of being performed after a fashion by individuals, but best performed in a manner to insure uniformity, security, and convenience to all members of the community.

The honor of the invention of money was claimed in ancient times for the Lydians and for Pheidon of Argos.[3]

[1] *Les Origines de la Monnaie*, p. 137.

[2] *Monnaies et Médailles*, p. 13.

[3] There were other Greek claimants, among them being the people of Naxos, Kyme, Phokeia, and Miletos. — Babelon, p. 186.

The development of money coined by the state from the use of metals by weight and by private coinage is generally set in the seventh century B.C. The claims of the Lydians and of Pheidon of Argos were so well sustained, even within a few centuries of that time, that the lexicographer Pollux, who drew his data from the best sources, including many authors who are now lost, and used it in a careful manner, declared that it was very difficult to settle the question to whom belonged the real credit. The difficulty of the problem has not diminished with the lapse of more than twenty centuries, but some additional light has been thrown upon it by comparisons of coins and ancient monuments. Lenormant reaches the conclusion that the stamping of money took place independently in both countries, but that in Lydia it was gold money, and in Ægina, where Pheidon was supposed to have executed the first coinage, it was silver money.[1] The money of Ægina was in the shape of a turtle, the pieces weighing a little less than twelve grams, and differed from the oval bars of bullion previously used only by some rough stamping. The Lydian money was of a similar shape, but less elongated, and was made in part of electrum.

A fact which leads Lenormant to conclude that the Lydian money has slightly the advantage in antiquity is that the pieces fulfil less completely than the coins of

Del Mar endeavors to carry the origin of money much further back than the seventh century, but he does not appear to distinguish between official coined money and its cruder forerunners. —*History of Monetary Systems*, p. 38, et seq.

[1] *La Monnaie dans l'Antiquité*, I., p. 126. Professor Hill, of the Department of Coins and Medals of the British Museum, declares that "the bulk of the evidence, both literary and numismatic, goes to show merely that the earliest silver coinage was the Æginetic, but that the Æginetic coinage was at the same time only an adaptation of something which already existed on the other side of the Ægean Sea."—*A Handbook of Greek and Roman Coins*, p. 6.

Ægina the conditions which go to make money. Indeed, to the unskilled observer the roughly marked and irregularly formed coins thus singled out to denote the birth of money present no striking difference from the pieces of bullion bearing private marks which had preceded them and some of the slightly improved pieces which followed them. The distinctive step in monetary science which they denote is the stamp of the state rather than the individual, giving a certain assurance of the uniformity and purity of the metal. The stamps were sunk deeply into the metal, instead of standing out upon its surface, and were simply the forms of animals and not the distinctive wording which is found on modern coins. "The invention of the matrix, giving a type in relief," says Lenormant, "constituted a capital step which yet remained to be accomplished and which would constitute a new period in the history of money." [1] The coins of Ægina, although irregular in form, conformed to this new condition of progress, and this is one of the reasons why he throws the weight of his opinion in favor of the greater antiquity of the Lydian coins of electrum bearing the sunken stamp.

Money having thus been born, even in its primitive form its convenience caused its rapid introduction into all the countries coming in touch with Asia Minor or the Greek islands, and from them into countries still farther removed. From Lydia the use of money spread among the Greek cities which dotted the west coast of Asia Minor, and from there crossed the sea to the coasts of Thrace and Macedonia. Ægina was in the seventh century the emporium of Greek commerce, where the ships of the Orient and of the Greek islands met in a sort of international market.[2] It was a part of the logic of events that the use of money should have its birth there, and that from Ægina it should traverse all parts of the

[1] *Monnaies et Médailles*, p. 21. [2] Babelon, p. 212.

Greek peninsula. Its propagation was so rapid that by the middle of the sixth century B.C. there was not a country where the Greeks were established in which money was not used.

When the Persians pursued their conquering march over Asia, they learned from the Lydians the use of money and began the coinage of the gold daric, one of the most beautiful of the early coins. The use of money spread more slowly in the interior provinces of the new Persian empire, and the precious metals still circulated by weight, as in the days of the ascendency of Nineveh and Babylon. Money proved especially convenient for carrying on the great military enterprises of the Achæmenid kings, and the product of the royal mints was poured out in gold for the army and in silver for the fleet. The use of coined money did not become general in Phœnicia until the times of the Medic wars (492–449 B.C.), and was introduced into Egypt by the Greek and Phœnician merchants of Memphis and Naucratis. It was not till the time of Alexander that the use of money became common in Egypt.[1] There was a natural economic reason for this in the fact that the organization of industry was based upon slavery. This precluded money payments for wages and the establishment of "money economy" among the masses.

The Greek traders and colonists who peopled southern Italy introduced the use of money at an early date into the peninsula, and imitations of Greek coins were made by the Etruscans. The Roman legends claimed an independent invention of money by one of their early kings. The *aes signatum*, of bronze or copper, stamped at first with simple lines, was ascribed to Numa or Servius Tullius, and was perhaps of independent origin, but government coinage of gold or silver money was probably introduced from Greece or her imitators in Sicily or Etruria.[2] It

[1] Noel, *Histoire du Commerce du Monde*, I., p. 95.

[2] Babelon declares that the rôle of Servius Tullius was to put

was not until the century following the combat between the Etruscan and the Syracusan fleet under Hiero the First (about 475 B.C.) that a well-ordered coinage of gold and silver, accompanied by the use of the *as* as subsidiary money, was adopted in Etruria. This system, in its turn, had an influence upon the monetary art of the Greeks of Cumæ and Sicily.[1] Greek colonies carried the use of money to the Euxine, and in later times in the valley of the Danube there were quantities of early Greek money, consisting largely of pieces coined under Philip and Alexander of Macedon. Massalia (now Marseilles) was the medium for the introduction of coined money into Gaul, and through the Greek colonies in the north of Spain it spread among the more civilized tribes of that peninsula.[2] The Carthaginians were slow in adopting the use of coined money, which they finally took from Sicily rather than from their mother-country of Phœnicia. The first Carthaginian coins were struck in Sicily after Sicilian models to serve for military purposes in the island, but in course of time the use of money spread to the parent city on the African coast.

The conquests of Alexander carried the use of money beyond the Persian Gulf and into India. There are no traces of coined money in these countries before his time, and the money afterwards coined bears indisputable

the currency and weight system upon a definitive legal basis.—*Les Origines de la Monnaie*, p. 191. It was about 450 B.C. that the Decemvirs, in the Twelve Tables, fixed contributions in metallic money.

[1] Lenormant, *Monnaies et Médailles*, p. 24.

[2] Ridgeway supports the view that the Gauls learned of gold money through the Greek colonies, and refutes the rather surprising contention of Schrader (*Prehistoric Antiquities of the Aryan Peoples*, p. 255) that their first knowledge of it was obtained at the time of the sacking of Rome in 390 B.C. The Gauls, on the contrary, had already obtained so definite a knowledge of the use and value of gold that Brennus stipulated that the ransom of Rome should be paid in gold.—*The Origin of Metallic Currency and Weight Standards*, p. 62.

marks of Hellenic origin. The monarchies which were set up upon the ruins of the empire of Alexander carried the use of money into Arabia and Parthia. In the third century B.C. the use of money was already universal among the civilized nations, and followed the Roman eagles in the conquest and civilization of distant parts of Gaul, Germany, Britain, and Dalmatia. Silver was the standard at Rome until near the dawn of the empire, and such gold coinage as occurred under Roman authority was executed by Sulla in 88 B.C. and Pompey in 81 B.C. It remained for Cæsar to unify the coinage as well as the political policy of the empire by the adoption of gold as the standard and by an immense output of new coins.[1] Augustus would not even leave to the state such a prerogative, but in the year 16 B.C. reserved to himself the coinage of gold and silver, and left to the senate and the generals only the modest profits upon the minor coins.

[1] Mommsen, *History of Rome*, IV., p. 660.

V

THE QUALITIES OF MONEY

Good money should have intrinsic value—Meaning of exchange value — Importance of stability of value — The qualities of homogeneity and indestructibility—Necessity that the money material should be capable of subdivision and combination without impairing the value of the parts—Adaptability of the metals for coinage—Special properties of gold and silver which qualify them for the monetary function—Their defects for the purpose.

HAVING studied the functions of money and the slow evolution of metallic money from among articles less exchangeable, it remains to consider the qualities which have made gold and silver the most acceptable materials of money, and which, therefore, may be concluded to conform in some degree to the requirements of an ideal money substance. Gold and silver have for nearly twenty-five centuries performed among civilized peoples the functions of the medium of exchange and standard of value, and various fractions of them, determined according to the history and traditions of each nation, have served as the common denominator of transactions. From this experience have been deduced these essential qualities of money, possessed by the precious metals:

(1) Value in exchange.
(2) Stability of value.
(3) Homogeneity of material.
(4) Durability.
(5) Divisibility without diminution of value.

(6) Large value in small compass.

(7) Adaptability to coinage.

I. Value in exchange is the primary quality of money. Money should be a merchandise capable of exchange without loss for every other merchandise. "The experience of centuries as well as reasoning," says Leroy-Beaulieu, "has demonstrated that money is a merchandise which is worth only the quantity of the precious metal which it contains." [1] It is sometimes contended that money is only the sign and symbol of value and does not contain value in itself. Value, in strict scientific reasoning, is a relationship rather than an inherent quality, The term intrinsic value is a misnomer in a sense, but there is hardly any substitute term which expresses equally well the value in exchange of articles which are highly prized. Gold and silver have intrinsic value in this sense—that they have become in the course of forty centuries the most highly prized and eagerly sought articles within human knowledge.[2] It is conceivable in theory that they might lose some of their value if they were no longer employed for monetary use, but by the same process of reasoning wheat would lose its value if it were no longer employed for food. The peculiar characteristic of the precious metals, and more particularly of gold in advanced societies, is that they have not been adopted as money arbitrarily by a single people or a few peoples, but that their inherent responsiveness to all the conditions of a medium of exchange, a standard of value, and a store of value have made them the chosen medium

[1] *Traité d'Économie Politique*, III., p. 127.

[2] Roscher declares that as people advance in civilization they at each step choose a more and more costly object as the medium of exchange. "Commodities which barbarians can consume immediately are objects of the first necessity, whereas more civilized people, who are in a condition to undergo greater expense, look more to the technic qualities of money, such as divisibility, capacity for transportation, and durability."—*Principles of Political Economy*, I., p. 251.

and standard of every civilized community.[1] Their selection by municipal law has been only the tardy recognition of the process of natural selection. As this fact is set forth by Robinson:[2]

"This is the natural and historical evolution of moneys —through commercial selection a thing is adopted as the common medium of exchange, and then, necessarily, as the common measure of value, in which function it quickly acquires the sanction of custom and thereby of law. The essential particulars that it is itself of intrinsic value, or that it has the property it measures and by virtue of which things are mutually exchangeable, with or without an intermediary, and that it is adopted in and through their interchange, are true of every form of money that any society has ever employed."

Money does not derive its value wholly from its use as a medium of exchange, even though that use rests upon the test of twenty-five centuries of human experience. Gold and silver were valued even in primitive times because they possessed value as merchandise and conformed to the other requirements of money. In India at the present day silver serves at once as an object of ornament and of exchange. It was the practice, down to the suspension of the free coinage of silver by the British government in 1893, for the Hindoos, when afflicted by famine or poverty, to take their ornaments to the mint for conversion into silver rupees. When the crisis was passed and coin flowed again into their hands, it could be converted without loss back into ornaments. Silver has

[1] "It is true that the monetary use of the precious metals is the principal cause of their value; it is an error to think that the legislator can regulate this use at his pleasure. We employ things because of their utility, or, more precisely, according to our opinion of their utility. It is in this respect with the precious metals as with other commodities. If gold and silver have general purchasing power, it is not because the legislator has prescribed it, but because every one desires to possess them."—Arnauné, p. 21.

[2] *Coin, Currency, and Commerce*, p. 21.

sometimes been preferred to gold among savage peoples because of its greater bulk and effectiveness in ornamentation. Both silver and gold, however, since the beginning of the working of the metals, have been capable of conversion to so many uses in the arts that they have derived from this fact alone a high value in exchange.[1]

II. The precious metals derive the high quality of stability of value through successive centuries from two qualities—the difficulty of making large annual additions to the supply and their indestructibility. Changes in the purchasing power of a given weight of silver or gold have occurred, but no other substance has yet been found which meets so well the demand for stability of value.

It is one of the important conditions of a sound monetary standard that it shall not be subjected to violent fluctuations in the supply of the standard metal. If gold could be produced by a cheap chemical process, or if it were dug out of the earth in many hundreds of millions in some years and in only tens of millions in others, it would cause changes in the supply which might affect its value in exchange. The value of metallic money in exchange does not necessarily vary in exact proportion with the supply, but it is essential that the article employed should be precious, difficult to obtain, and should cost for production nearly as much as its value in exchange. Gold conforms pre-eminently to these conditions. There have been fluctuations in the supply, but they have not been radical enough to seriously affect its value except upon two occasions—the opening of the American mines in the sixteenth century and the output of California after

[1] Jevons points out, as bearing upon the contention that the precious metals owe their value chiefly to their use as money, that they "are endowed with such singularly useful properties that, if we could only get them in sufficient abundance, they would supplant all other metals in the manufacture of household utensils, ornaments, fittings of all kinds, and an infinite multitude of small articles."—*Money and the Mechanism of Exchange*, p. 34.

1849. The fluctuations which then occurred in the exchange value of gold were due to the relative smallness of the stock which was then in existence. Later years have brought much larger supplies into the market without affecting in any such material degree the exchange value of the metal, because the new supplies have borne a smaller proportion to the accumulated stock.

III. Silver and gold both conform fully to the requirement that their material shall be so homogeneous that a given weight of either is equal to another given weight in value. There is some difference in the coloring of gold, that of some mines being light in shade and that of others of a reddish or orange tint, but this difference does not affect the value of the metal. An ounce of pure gold from the mines of California is of equal value in exchange with an ounce of equal purity from Australia, South Africa, or the Ural Mountains. There are only a few commodities which conform to this condition. Wheat has to be classified by qualities in order to permit its sale upon the exchanges without the separate examination of each carload. There is more homogeneity of quality in two bars of iron or two bars of copper, but they are not always of equal value. This uniformity of value is of great convenience and high importance in the material used for money. Differences in the qualities of gold and silver would remit society to many of the inconveniences of barter, because of the necessity of placing a different exchange value upon the coins of different countries even where there was identity in the weight and purity of the metal.

IV. The durability of the precious metals, without deterioration, is a quality of high importance for their monetary use. The precious metals do not evaporate like alcohol, mould like wheat, or putrefy like the flesh of fish or cattle. Tin, which was occasionally used as money in antiquity, corrodes so rapidly that this fact accounts for the finding of very few specimens in the refuse heaps

of ancient cities. Iron, the money of Sparta, also yields in the course of time to rust, and copper is susceptible of oxidization. Silver loses a little of its brilliance of coloring by long exposure, but does not lose its intrinsic weight and value. Gold changes hardly at all by mere exposure to the air. Both metals wear slightly by handling in long use, but only a fraction of one per cent. a year even when passing constantly from hand to hand. This wear, or abrasion as it is called, is so slight that it affects the value of a coin only after many years, and can be determined in advance with almost mathematical precision by those in charge of the mintage.

This quality of durability without deterioration is of importance where the precious metals are hoarded as a store of value. The quality is of equal importance, however, in giving them value in exchange and in permitting their conversion from money to industrial uses and back again into money. An article which was constantly deteriorating could not be converted at its old value from money into objects of use and art, nor back again from those objects into money. It would lose in a large measure its general acceptability. Durability and capacity for preservation are accompanied, in the case of metals, with the condition that preservation does not involve expense for maintenance. The importance of this quality is illustrated by the anecdote cited by Jevons and other writers, where the Parisian singer, Mlle. Zélie, making a tour of the Society Islands, was paid in pigs, cocks, turkeys, and fruit, and, having no immediate use for all the fowls, had to employ the fruit in keeping them alive.[1]

V. The quality of divisibility fits the precious metals peculiarly for use as money. Ten pieces of gold containing one-tenth of the weight of a gold eagle are worth exactly as much as an eagle. The division of gold into the most minute quantities or its accumulation in the greatest bulk

[1] *Money and the Mechanism of Exchange*, p. 1.

do not change the value of each particle. This is not a quality common to most commodities. Many articles, like building-timber, granite, and even coal, depend largely upon the size of the pieces for their value. This is pre-eminently the case in respect to diamonds, which are occasionally cited as an important store of value. A diamond of ten carats is worth many times the value of ten diamonds of one carat, and a diamond of thirty carats is worth much more than three diamonds of ten carats. Gold and silver are subject to no such limitations in their qualification for use as money. Silver is capable of division into fractions sufficiently minute to equal the value of the labor of a few minutes, while gold in small compass has sufficient value to equal the labor of weeks or months.

VI. The element of large value in small compass is an important one in modern exchange, because it contributes to the easy transfer of money from place to place. It is this fact which gives money a substantially uniform value in all parts of the world at the same time.[1] The cost of conveying gold or silver from London to Paris, including insurance, is stated by Jevons at about four-tenths of one per cent., and between the most distant parts of the commercial world it does not exceed two or three per cent. It is necessary that the material of money should be neither too minute nor too bulky. Gold cannot be divided conveniently into fractions small enough for small change, and there are metals of which a pin-head in amount would represent the price of a day's labor. Cases of money too bulky for modern use are thus defined by Jevons:[2]

[1] "Transportation of values supposes an equality of the value of the money in two places, while the transportation of goods supposes different values of the same kind of goods in both places." —Knies, *Geld und Credit*, I., p. 218.

[2] *Money and the Mechanism of Exchange*, p. 35. Even silver has been subjected to criticism because of its bulk, and Laveleye

"There was a tradition in Greece that Lycurgus obliged the Lacedæmonians to use iron money, in order that its weight might deter them from overmuch trading. However this may be, it is certain that iron money could not be used in cash payments at the present day, since a penny would weigh about a pound, and instead of a five-pound note, we should have to deliver a ton of iron. During the last century copper was actually used as the chief medium of exchange in Sweden; and merchants had to take a wheelbarrow with them when they went to receive payments in copper dalers."

VII. Adaptability to coinage and to use as money is one of the qualities which gold and silver possess in an eminent degree. They offer, in the language of a French author, "At once sufficient malleability and hardness to receive and permanently retain the imprint of a monetary type, which cannot be worn except by incessant and prolonged handling nor be cut in pieces without a serious effort. Of all the metals they are those most easy to recognize at the first effort, by sight, by sound, by weight, or by chemical tests." [1] Some of the mechanical advantages of gold and silver are set forth by Bolles: [2]

"All impurities can be readily removed and a uniform quality obtained. They can be readily tempered or hardened by the mixture of a small quantity of copper, and thus endowed with better wearing power. Their composition also admits of stamping, or of marking denominations, without much cost. If the metals were too hard, this could not be done; if they were too soft, then a double defect would attend their circulation: their names would wear off and they might lose their identity: and they would fall below legal weight and lose their legal existence."

declared that in Belgium in 1891 the declining proportion of gold money was indicated by "the great sacks of crowns which begin to reappear upon the backs of bank messengers."—*La Monnaie et le Bimétallisme Internationale*, p. 115.

[1] Babelon, p. 241. [2] *Money, Banking, and Finance*, p. 12.

Other metals have been tried as the material for coinage, but have not proved so workable, except for subsidiary coins, as gold and silver. Platinum was tried by the Russian government in 1828. It is a metal of an extremely high melting-point, oxidizes slowly, and its white color and high specific gravity easily distinguish it from other metals. The Russian government was the owner of the principal platinum-mines in the Ural Mountains, and had pieces struck of the face value of three, six, and twelve rubles. Several objections to the use of the metal soon disclosed themselves. Platinum is not largely used in commerce, and there is no large stock on hand to steady the value of the portion used as money. The cost of making the coins was found to be great, owing to the difficulty of melting. The Russian government abandoned the experiment in 1845 and withdrew the coins from circulation. Improvements in the manner of working platinum were afterwards made, and it was proposed by Jacobi at the monetary conference held in Paris in 1867 that the metal be adopted as the material for five-franc pieces. The suggestion was not adopted, and is not likely to be, for it runs counter to the commercial experience of the world in seeking a standard of value.[1] Some of the advantages of gold as money are thus summed up by Walker:[2]

"The fusibility, ductility and malleability of gold form a group of properties of the highest importance, as we shall have occasion farther to note when we come to speak of coinage, while they add vastly to its uses in the arts industrial and decorative. One cubic inch of gold,

[1] Jacobi declared that platinum was found in considerable quantities in various parts of South America and that it was predestined by nature to become the universal metal for money when it should be found in sufficient abundance.—Appendix to Report of International Conference of 1878, p. 855. It is said by Cauwès that platinum has the important defect that old metal is worth much less than new.—*Cours d'Économie Politique*, II., p. 157.

[2] *Money*, p. 41.

Mr. Seyd tells us, may be drawn out to cover fourteen millions of square inches. Gold may be refined and alloyed, united and divided, with absolutely no loss of the pure metal in the repeated process."

Notwithstanding these varied merits of the precious metals, they fall short, like most human instruments, of ideal perfection as the material of money. They lack in some respects that degree of cognizability at sight which would afford complete protection against counterfeiting;[1] they show with time the effects of wear; and they have not always conformed to that steadiness of value in relation to other things which is the dream of monetary theorists. Nevertheless, their unanimous selection by civilized peoples in historic times as the material for money and as the standard of value justifies the conclusion that they conform on the whole to the varied demands made under widely diverse conditions better than any other substance or combination of substances which has come within the realm of human knowledge.

[1] Sykes says, "None of our money possesses this attribute in perfection, and the counterfeit coiner still carries on his lucrative, if risky, profession, but it is not easy to turn out a counterfeit gold coin which will defy a close examination."—*Banking and Currency*, p. 8.

VI

PRODUCTION OF THE PRECIOUS METALS

Bearing of the statistics of production on economic problems—Early history of gold and silver mining—Origin of the fable of the golden fleece—Mines of Greece, Thrace, Egypt, and Spain—Decline of mining during the Middle Ages—Eagerness of Columbus and his successors to find gold and silver—Ultimate success in Mexico and Peru—The modern discoveries in California, Australia, and South Africa—Changes in ratio of production of the metals.

THE amount of production of the precious metals from year to year and decade to decade has always been a factor in their value and distribution. The economic bearings of the records of this production, aside from their purely historical interest, involve the subjects of the quantity of the precious metals now existing in the world; their influence upon prices, contracts, and general well-being; the portion left for use as money after the deduction from the annual product of the amount used in the arts; and the changes in the relation between gold and silver caused by changes in the supply and in the relative demand for one or the other metal.[1]

Many investigations have been made to ascertain the course of production, and where correct figures have been

[1] What Walker declared in 1877 is still true, "The monetary questions which now agitate many of the nations of the world, not sparing America, Asia, or Australia, convulsing some with the severest throes of felt or apprehended financial distress, have reference primarily to the facts, the startling facts, of the present yield of the precious metals."—*Money*, p. 99.

lacking estimates have been made based upon premises more or less plausible. The broad facts disclosed by such investigations regarding the fluctuations in the stock of the precious metals in the world in use as money are that the amount was very small prior to the discovery of America in 1492; that the stock, especially of silver, was materially increased by the production of the mines of Mexico and Spanish America during the sixteenth and seventeenth centuries; but that the sum of this production, while it met to a certain extent the demand for metallic money under the limited economic conditions of that time, was but a trifle in comparison with the large fund of gold placed at the command of the world after the discovery of the mines of California and Australia about 1850; that this large production of gold slackened somewhat after 1875, while the production of silver increased, but that there was another great revival in the production of gold after the opening of the mines of South Africa and the Klondike about 1890.

The production of the precious metals prior to 1492 is the subject of many detached notices in the writings of antiquity and the Middle Ages, but does not lend itself to very precise calculations. The most painstaking effort to bring together the material on the subject and to form some estimate of the production of early times and the stock remaining in use as money was made by Jacob, an English writer, early in the nineteenth century.

His researches, as well as the notorious facts of ancient history, show that gold and silver were found in nearly every country soon after the people acquired the art of working metals. Owing, however, to imperfect methods, only the richest ores and those on the surface were reached, and the supply of these was soon exhausted. The third book of Job notes the fact that "surely there is a vein for the silver, and a place for gold where they fine it." [1] The

[1] Job, xxviii., 1.

region of the Caucasus, where the chain of the Taurus Mountains divides into two ranges, was one of the most famous of the early gold-fields, and the method of obtaining the gold is supposed to have given rise to the fable of the golden fleece. The primitive source of gold was the sands of the rivers, from which the gold was filtered by its greater specific gravity. In the Caucasus, as in Mexico even at the present time, a lamb's fleece was placed in the bed of the stream, whose heavy wool caught and retained the falling fragments of the yellow metal, creating a genuine fleece of gold well worth the cupidity of Jason and his fellow-Argonauts.[1]

These mines of the Caucasus were not far from those of the Ural Mountains, where Russian travellers in the eighteenth century discovered remains of the mining operations of the ancients. Nubia was one of the most famous of the mining countries of Africa, and contributed much to the wealth of the Pharaohs. According to an ancient writer, these mines were not far from the ancient Berenike Panchrysos, in latitude twenty-two degrees north. Their operation was interrupted by the invasion of the Ethiopians, who overran Egypt between 800 and 700 B.C., and afterwards by the Medes and Persians. In the passages of the mines have been found many tools of brass and masses of bones of people who had been buried in the ruins.[2] Some of the mines in this vicinity were worked as late as the fourteenth or fifteenth century.

The extension of the arts of mining from Egypt and the civilized countries of Asia to the nearest European countries about fifteen centuries before Christ led to the opening of the mines of Greece. The island of Cyprus yielded gold, silver, and copper, and continued to be worked until the times of the Romans. In Crete and Thasos mines of gold were opened by the Phœnicians. The rich silver-mines of Laurium were famous in Athenian history,

[1] Hauser, p. 36.

[2] Jacob, I., p. 43.

and with the extension of Greek civilization were supplemented by the opening of mines of gold in Thessaly and of silver in Epirus. The product of these mines became available about the time of the Persian wars and added to the growing wealth of Athens and the ability of the allied states to contribute to the store of precious metals piled up in the temple of Delphi as commutation for the protection rendered by the Athenian navy against the Persians. In Asia Minor the rich gold-dust contained in the river Pactolus running by Sardis gave rise to the fable of Midas, who by washing in the river acquired the power of converting whatever he touched into gold. The mines of Italy, which were worked by the Etruscans, had their period of richness and were followed by the mines of the Alps and the rich silver-mines of Spain. One of the Spanish veins is said to have supplied Hannibal with 300 pounds weight of silver daily.[1]

The methods of mining at this time were comparatively crude, but new supplies of the precious metals seem to have been discovered, especially in the mountain ranges and the sand of river-beds flowing from the mountains, as civilization from time to time extended its sway and proper tools of copper and iron became available. The result of this mining activity was to accumulate great stores of the precious metals, which were all the more imposing from the fact that they were less apt to be used as an actual medium of exchange than as hoards for the purpose of illustrating the wealth and power of monarchs and rich individuals and as a treasure for emergencies. Thus, we read of Solomon that he "made a great throne of ivory and overlaid it with the best gold"; that all the drinking vessels were of gold; that "all the vessels of the house of the forest of Lebanon were of pure gold; none were of silver; it was nothing accounted of in the days of Solomon."[2] Many passages are collected by Jacob to

[1] Jacob, I., p. 99.

[2] I. Kings, ch. x., v. 18–21.

show that the amount of money paid as tributes to Darius and other rulers represented immense sums, but it is by no means clear that they were necessarily represented in bulk by coined money, since banking methods were well understood in the ancient world and taxes and transfers of capital were undoubtedly made, at least in part, by letters of credit rather than in coin.[1] There is no doubt, however, that very large sums in metal were accumulated by the early Roman emperors. They indicate the existence of a considerable volume of the precious metals at that time.

One of the peculiar circumstances which affected the relations of society to the precious metals in ancient times was that these relations did not conform to modern economic principles. This was true of the methods of mining themselves, which were based upon the slave system, and also of the use of the metals as money. While they were employed as money in one form or another in the commercial centres and by trading peoples, the stock was scanty and was very slightly diffused in agricultural communities and among the masses. The proportion of gold and silver which might have been heaped up by Darius, Pericles, or Augustus in their treasuries or temples represented a larger ratio of the total stock of the metals than any such accumulations of to-day, even the large stocks in the reserves of the Bank of France, the Imperial Bank of Russia, or the Treasury of the United States, and they only rarely performed, like these modern accumulations, the functions of money in general use through their paper representatives. As Walker truly says:[2]

[1] Thus, Augustus is said to have received by the testamentary dispositions of his friends about $155,000,000; but it came at different times and undoubtedly in different forms. Tiberius left at his death about $100,000,000, but this was not necessarily entirely in metal. *Vide* Jacob, I., p. 26.

[2] *Money*, p. 108. It is significant of the limited diffusion of gold and silver among even the well-to-do that in the ruins of Pompeii "among the utensils none have been found either of gold

"Gold and silver were regarded as an end, not as a means; as treasure, not money. They were distributed not by trade, but by war. It was the hand of the conqueror that stripped them from palaces and temples. If they were taken from the store of the monarch, it was not to freight the caravans of commerce, but to fill the chariots and mule-carts, to lade the sumpter-horses or the camel-trains of a victorious army."

Mining under the Roman Empire gradually fell under state control, which nearly always stifles improvements by removing the stimulus of self-interest. A horde of officials was appointed, but operations fell into the hands of men destitute of theoretical knowledge, who blindly followed the methods of their predecessors and made no new experiments.[1] The slave labor employed was unskilled and ceased to be available with the collapse of great fortunes and the social and economic disorders attendant on the break-up of the empire. When the barbarians poured across the frontiers, the mines of Illyria, Dalmatia, and Thrace were the first to suffer. These circumstances, with the steady decline in the arts and sciences after the time of the Antonines, led to the almost complete abandonment of mining during the Middle Ages and the gradual disappearance of the stocks of the precious metals which had been inherited from antiquity. Jacob undertakes to calculate mathematically the probable stock of the metals in the time of Augustus and the percentage of loss by abrasion during succeeding centuries,[2] but such estimates are purely conjectural, and the only indisputable fact is the great scarcity of gold and

or silver; but those for which in our day silver is almost exclusively adopted by the middle class of persons, are composed of iron or brass."—Jacob, I., p. 210.

[1] Jacob, I., p. 177. Slaves themselves became difficult to procure and too expensive for the heavy work of mining, during the period of peace which prevailed under Augustus and his successors.

[2] *The Precious Metals*, I., pp. 225–237.

silver at the time of the discovery of America. Here and there, in Hungary, Saxony and Spain, mining was carried on, but with only modest results.

When Columbus and the explorers who followed him set out on their quest for undiscovered countries, it was largely with the hope of finding gold and silver. Gold was found at the outset in Hispaniola, the first island acquired by Columbus for Spain, but even with the forced labor of the natives it was obtained in only limited quantities.[1] The quest for gold, at first disappointed, was more amply rewarded after the conquest of Mexico by Cortez, about 1520, and of Peru by Pizarro, about 1532. The treasures which had been accumulated by many years of mining by the simple but partly civilized peoples of these countries were poured into Europe and were the subject of most fabulous estimates as to their amounts. Thus, the ransom of the Inca of Peru extorted by Pizarro —a sum equal to about $4,000,000 gold of our money, and an additional sum in silver[2]—was a large amount to be distributed among a small body of adventurers, but did not add greatly to the monetary resources of the world. It was the discovery of the rich silver deposits of the mountain of Potosi, in Peru, about 1545, which revealed the New World as an important producer of the precious metals and especially of silver. Up to this date (1493–1545) the production of gold preponderated in the proportion of about $220,000,000 to $144,000,000 in silver; but from that discovery, followed by many others, began what Leroy-Beaulieu designates as "the first age of silver."[3] It was an age which lasted for nearly three centuries, terminating about 1840, and which brought into the commercial world nearly $6,000,000,000 of silver against less than half as much gold.

In the next two generations these conditions were re-

[1] Patterson, *The New Golden Age*, I., p. 338.
[2] Prescott, *Conquest of Peru*, bk. iii., ch. vii.
[3] *Traité d'Économie Politique*, III., p. 240.

versed. While the production of silver was so increased that the aggregate for the sixty-two years from 1841 to 1902 was almost exactly equal to the entire product of the three and a half centuries which had gone before, the increase in the production of gold was in still greater proportion and carried the product of sixty-two years to an aggregate nearly three times as great as that of the preceding three and a half centuries. Already, about 1823, the mines of the Ural Mountains began to be more productive, and about 1830 auriferous sands were discovered in Siberia which by 1840 were yielding a considerable product.[1] These sources of production afforded but a drop in the bucket, however, to those revealed by the discoveries of gold in California and Australia.

Title to California had not yet passed to the United States by the treaty with Mexico when an American mechanic from New Jersey named Marshall, in the employ of Captain Sutter, made the great discovery. Some miles above Sutter's Fort, on the American fork of the Sacramento, Marshall was working with some other men on a sawmill. While widening the channel through which water was let on to run the mill, yellow particles were brought down by night which were discovered by Marshall the next morning. Suspecting them to be gold, he started to take some of them to Captain Sutter, reaching the fort on the afternoon of January 28, 1848.[2] The news rapidly spread in California, reached Washington in an official report in December, and within the next year attracted gold-seekers in every type of craft by sea and in caravans which braved every hardship in finding roads over the untracked mountains. Within a year San Francisco had sprung into a prosperous city, and the next year California was admitted into the Union by the Compromise of 1850.

Gold was discovered in Australia as early as February

[1] Walker, *Money*, p. 143.

[2] Schouler, *History of the United States*, V., p. 133.

16, 1823, at a spot on the Fish River near Bathurst, in New South Wales.[1] It was only gradually, however, that its existence in paying quantities became known, and it required the stimulus of the Californian discoveries to swell to an army the rush of gold-seekers. The government at first discouraged mining, but now reversed its policy, and in August, 1851, the precious metal was discovered in large quantities at Ballarat by Mr. Hargreaves.[2] In the summer of 1852 a large flow of immigration took place from Europe and gold began to be found in every province. From the first discoveries to the close of 1897 the Australian colonies produced gold to the amount of nearly $2,000,000,000,[3] and the next five years added another sum of $375,000,000. In this volume of production Australia ran an almost even race with the United States.

These two countries enjoyed unchallenged supremacy until some time after the development of the mines of South Africa about 1889. There, as in Australia, gold was known to exist some years before it was extracted from the mines in large quantities. A flourishing town equipped with machinery for mining and crushing the quartz ore was in existence as early as 1884; but as late as 1887 Barnato, the South African promoter, was advised by two engineers that the auriferous rock could not possibly extend to any depth.[4] But their error was soon discovered, the town of Johannesburg sprang into being almost in a night, and the gold production of Africa, principally from the Witwatersrand (White Waters Range), reached $10,256,100 as early as 1890.

The production increased rapidly every year, until in 1896 the product of Africa surpassed that of Australia, and in the next year that of the United States as well.

[1] Coghlan, *The Seven Colonies of Australasia, 1897–98*, p. 210.
[2] Patterson, I., p. 185.
[3] Coghlan, p. 524. His figures are £399,381,186.
[4] Raymond, *B. I. Barnato: a Memoir*, p. 109.

The war which broke out between Great Britain and the Boers in 1899 closed the mines for several years, but mining activity was resumed as soon as machinery could be installed after the peace. The interest aroused all over the world by the new gold discoveries, and the great improvements and economies made in mining methods, seemed to operate as a stimulus to production in the old gold-bearing countries as well as the new. The production of the three chief competitors in gold production advanced during the last decade of the nineteenth century in the following proportions:

RECENT INCREASE IN GOLD PRODUCTION

Year	*United States*	*Australasia*	*Africa*	*The world*
1890...	$32,845,000	$29,808,000	$10,256,100	$118,848,700
1893...	35,955,000	35,688,600	28,943,500	157,287,600
1896...	53,088,000	43,776,200	44,581,100	202,251,600
1899...	71,053,400	79,321,600	73,023,000	307,168,800

A graphic idea of the production of gold and silver at different periods since the discovery of America is afforded by the following presentation of figures:[1]

PRODUCTION OF GOLD AND SILVER IN THE WORLD SINCE THE DISCOVERY OF AMERICA

GOLD

Period	Annual average for period		Total for period	
	Fine ounces	*Value*	*Fine ounces*	*Value*
1493–1600..	224,693	$4,645,000	24,266,820	$501,640,000
1601–1700..	293,304	6,063,000	29,330,445	606,315,000
1701–1800..	610,882	12,628,000	61,088,215	1,262,805,000
1801–1840..	512,217	10,589,000	20,488,552	433,535,000
1841–1870..	4,772,876	98,664,000	143,186,294	2,959,924,000
1871–1890..	5,347,540	110,544,000	106,950,802	2,210,870,000
1891–1902..	10,721,606	221,635,000	128,659,270	2,659,624,000
Total.....			513,970,398	$10,624,713,000

[1] This table was specially prepared for the author by Mr. Robert E. Preston, Acting Director of the Mint. From 1492 to 1885 is a table of averages for certain periods, compiled by Soetbeer; for the years 1886 to 1902 the production is the annual estimate of the Bureau of the Mint.

SILVER

Period	Annual average for period		Total for period	
	Fine ounces	*Coining value*	*Fine ounces*	*Coining value*
1493–1600	6,797,463	$8,789,000	734,125,960	$949,173,000
1601–1700	11,970,731	15,477,000	1,197,073,100	1,547,731,000
1701–1800	18,336,720	23,708,000	1,833,672,035	2,370,809,000
1801–1840	20,028,887	25,896,000	801,155,495	1,035,836,000
1841–1870	31,036,378	40,128,000	931,091,326	1,203,835,000
1871–1890	85,751,998	110,872,000	1,715,039,955	2,217,425,000
1891–1902	163,028,342	210,784,000	1,956,340,100	2,529,410,000
			9,168,497,971	$11,854,219,000

Analysis of these figures shows that the volume of gold production averaged considerably less than $5,000,000 annually from the discovery of America to the close of the sixteenth century, and advanced during the next century to an average of only about $6,000,000. The eighteenth century showed an increased volume of production, which carried the annual average up to about $12,500,000. This average persisted during the first few years of the next century, but was then checked by the revolt of the American colonies of Spain. The revolutions which followed at frequent intervals among the liberated peoples caused such disorder that the mines were in many cases abandoned, the export movement ceased, and Europe, at the very moment when industry was feeling the impulse of renewed activity as the result of the termination of the Napoleonic Wars, began to suffer a penury of gold.[1] In spite of an increased product in the Ural Mountains, the gold production of the first forty years of the nineteenth century gradually declined and fell upon the average to about $10,600,000.

Then came the great outburst of mining activity which followed the opening of the Californian and Australian

[1] In Mexico the Spanish government had not permitted any but Spaniards to work the mines. After the revolution the Mexican government exiled the Spaniards, and they took away considerable amounts of capital. Mining was thus more severely handicapped than if it had been freely opened to foreign capitalists.—Chevalier, *La Monnaie*, p. 191.

mines. For the next generation, from 1841 to 1870, the gold product of the world was nearly three thousand millions of dollars, and the average annual product was multiplied by more than ten. This annual average was maintained from 1870 to 1890, but with a tendency downward towards the close of the period. Then came the new outburst of mining activity following the discovery of the mines of South Africa and the Klondike, which doubled the annual product and accumulated within the space of twelve years a stock nearly as large as that produced in the generation following the Californian and Australian discoveries. Again, in spite of the permanent additions made to the stock between 1850 and 1870, the generation beginning with 1871 witnessed a production of gold nearly equal to the entire product of the preceding 380 years.

The production of silver since the discovery of America has been more evenly distributed than that of gold. The silver product down to 1840 was almost continuously larger than that of gold and constituted more than two-thirds of the value of the combined product of the two metals. The new gold discoveries radically changed this ratio. For the thirty years ending with 1870 the gold produced was nearly three-fourths of the total value of the aggregate production of the precious metals. To put the case more forcibly, twice as much silver as gold was produced during the eighteenth century and the early years of the nineteenth, while during the thirty years beginning with 1841 three times as much gold as silver was produced. For the next thirty years the production of one metal was almost exactly the same as that of the other. These figures in each case relate to value. In weight the production of silver was near ninety-five per cent. of the weight of both metals during the earlier period, and always maintained a large preponderance because of the wide difference in value of a given weight of the two metals.

The "Comstock Lode," one of the most famous of the silver-mines, was also a large producer of gold. Although discovered in 1858 by a Virginian miner named Finney, the lode took its name from a high-handed and reckless adventurer named Henry Comstock. It was gold which was first taken out, and before mining for silver was systematized a serious battle for control of the country had to be fought with the Indians at Pyramid Lake. Then moved across the scene Adolph Sutro, with his finally successful plan for a tunnel to carry off the waters; William Sharon, agent of the Bank of California and railway promoter; John Mackay, J. G. Fair, James Flood, and William O'Brien, as purchasers of the Virginia Consolidated and discoverers of the "Big Bonanza"; then after 1877 came the falling off in the product and the gradual decline of the mine. Up to 1880 the total product of the Comstock mines was computed at $174,000,000 in silver and $132,000,000 in gold. The highest yield was $38,000,000 in 1876. In 1880 the product had fallen to $5,100,000 and in 1881 to $1,000,000.[1]

The Comstock Lode was typical of the highly speculative character of mining enterprises. Of 103 mining enterprises started up to 1880, only six proved profitable. They yielded a product of $115,900,000 for an expenditure of $18,300,000. The other ninety-seven mines, even in this rich district, showed a loss of $43,400,000. While cost of production must in the long run influence the volume of the precious metals taken from the mines, the speculative character of mining has made this influence difficult to trace and slow in its operation. It is probable that the total stock of gold and silver taken from the earth has been extracted at a cost in labor several times the value of the metal obtained. Where a few have obtained rich prizes, many more have suffered disappointment and ruin. It is necessary not merely to obtain the

[1] Suess, pp. 383–385.

metals, but to obtain them in proportions which compensate the labor expended. They must, as Hauser expresses it, fall within "the limit of exploitability." [1] A summary of the economic results in the Californian mines, made by Dr. Reyer, after the study of actual conditions, puts the case thus:[2]

"Even though the dividends in particular cases are large, they by no means cover the deficit of all the unprofitable undertakings. In fact, the production of gold here, as in Australia, has always yielded a net loss. This may be explained as follows. A few dozen mines produce the great mass of gold. They make large profits and determine the price. Their success attracts capital without end to similar undertakings; these are given up after a while, and the money is returned to other really productive branches of industry. But the temptation from the fortunate gold producers continues, and causes new capital constantly to rush to its destruction—the same phenomenon that is seen in games of chance. A few win a great deal; hundreds lose all they have. The business, on the whole, is a losing one."

This view, from the side of capital, is reinforced on the side of the net return to labor. In the washings of the Rhine in the early years of the nineteenth century a day's work yielded from one and one-half to two francs (thirty-nine cents).[3] In Australia, in the most productive period of early mining, the ordinary wages of a laborer were thirty shillings ($7) and the minimum was fifteen shillings. In view of the difficulty of bringing European products to the island and the high prices which they consequently commanded, these sums did not represent a high purchasing power.

That cost of production is a factor in the output of the precious metals, in spite of the uneconomic character of much of this production, was brought out in a striking

[1] *L'Or*, p. 84. [2] *Bimetallism in Europe*, p. 83.
[3] Chevalier, *The Probable Fall in the Value of Gold*, p. 43.

way by the Mexican Commission on International Exchange. By separating the production of silver in Mexico from that in other parts of the world, they found that, while in 1902 there was a net increase in the world's production over 1893 of about 5,500,000 ounces, more than the entire increase was from the mines of Mexico. The silver production of all other countries fell from 122,062,527 ounces in 1893 to 112,053,667 ounces in 1902; the production of Mexico increased during the same interval from 43,410,094 ounces to 58,944,906 ounces. Nor were the figures for these years exceptional. The tendency of production outside of Mexico was downward, with slight variations, during the entire period of ten years, while that of Mexico was almost steadily upward. While other countries, therefore, were reducing their output by more than eight per cent., Mexico was increasing hers by thirty per cent. The explanation is to be found, at least in part, in the declaration of the commission that "this was on account of the free coinage system, which for the present encourages silver mining; but in other countries, where the cost of mining has to be paid in gold, the output of the silver mines has been reduced." [1] In Mexico, in other words, the decline in the gold price of silver was accompanied by a corresponding decline in the gold value of wages and prices of materials, because they were paid in silver; but in every gold-standard country the fall in the gold value of silver reduced the return received for a given number of ounces, while the expenditures for wages, machinery, and materials remained constant in gold, and reduced to a vanishing-point the profits from the poorer mines.

[1] Report of the Commission on International Exchange, 1903, p. 190.

VII

THE METALS AND THE MONEY SUPPLY

The vital question whether the stock of gold and silver is adequate for monetary demands—Existing stock of gold money—Annual consumption of gold in the arts—Amount lost by abrasion—Amount of gold and silver swallowed up in the East—Rapid increase in recent years of net gold production annually available for money—History of the decline in the gold price of silver—Early fears of inadequacy of the gold supply—Is there now danger of an excessive supply?

THE question whether the world is to have enough metallic money to meet the needs of expanding trade has always been a question of keen interest to economists and financiers. It has become especially so during the last twenty years, because these years have witnessed a revulsion of feeling, from the fear that gold was becoming scarce to a doubt whether it may not become so plentiful as to contribute to a serious inflation of values and rise of prices. What relation the recent production of the metals bears to the previous stock and what part of the annual new stock is available for use as money will, therefore, be the subject of this chapter.

According to the figures of the United States Mint, based in part for earlier times upon those of Soetbeer, the total production of gold from the mines from 1493 to December 31, 1903, was 529,652,914 fine ounces, representing in American currency a value of $10,948,899,300. The portion of this gold in use as money, according to the estimate made by the Mint Bureau in its report for 1904, was $5,685,700,000. The location of this monetary stock has been a subject of dispute, especially in the United

States, where much less gold appears in active use than would be looked for in view of the amount computed to be in circulation in excess of bank reserves. It is probable, however, at least in regard to gold, that the statistics are fairly accurate and if they seem in some cases to be excessive it is because the excess is locked up in private hoards or in small institutions which do not make official reports. In the case of the United States there is the more reason for accepting the substantial accuracy of the figures of the Mint Bureau, since the large stock of gold now calculated to be in the country is based upon statistics of production and export dating back only to 1873 when the stock assumed to be then in the country was only $135,000,000.

If the statistics are correct of the stock of gold now existing as money, there remains to be accounted for from the production of four centuries a stock of about $5,300,000,000. The three directions in which this stock has been absorbed may be roughly classified as employment in the arts, abrasion of coins and plate, and hoarding. The amount of the metals employed in the arts was largely a matter of estimate, until investigations which were begun by Soetbeer were reinforced by official inquiries, beginning in 1878, by the Bureau of the Mint of the United States. These calculations led to the conclusion by Soetbeer that the consumption of gold in the arts and industries throughout the world had reached in 1885 an annual amount of about $50,000,000. The estimate of the Director of the Mint for 1903 put the world's consumption in the arts for that year at 114,882 fine kilograms, representing a value of $76,350,600.[1] Such a use of gold has naturally increased with growth in population and wealth and with the large amount of the metals which has recently been added to the accumulated stock by the increased annual production. Assuming that consumption

[1] *Production of the Precious Metals during 1903*, p. 40.

for the last fifty years has been on the average $50,000,000 per year, the absorption of gold in this manner for the entire period would be about $2,500,000,000. A part of the gold thus used has consisted of old materials worked over, which should upon some grounds be deducted from the amount of gold thus absorbed, but this employment of old materials probably no more than offsets losses of gold in coin and in articles which have been discarded without preserving the gold.[1]

The abrasion of gold coins is much smaller than has generally been supposed. It is stated by Soetbeer that extended investigations in France and in Switzerland have shown that the average annual loss through abrasion on twenty franc pieces is about one-fifth per thousand; and exact weighings of large sums of German double-crowns which had been several years in circulation showed an annual loss of one-seventh per thousand. Careful calculations by Jevons put the loss nearer four-tenths in ten thousand;[2] but even on this basis Soetbeer felt justified in the conclusion that the loss by abrasion on the total monetary stock in his time, when this stock was about $4,000,000,000, was not more than 700 or 800 kilograms of gold per year, which would be about $500,000.[3] Even if this loss were extended backward over the past 100 years, it would represent an absorption of only $50,000,000 of the great stock of gold which has been produced. Abrasion is, therefore, under present conditions of production, a factor which is almost negligible.

The remaining source of disappearance of the gold stock from civilized states is the exportation of coin and bullion to the East. India has from remote times absorbed the

[1] Lord Aldenham obtained an estimate from an American dentist that the dentists of the United States and Great Britain used gold to the amount of about $2,500,000 (£517,000) annually. —*A Colloquy on Currency*, p. 177

[2] *Investigations in Currency and Finance*, p. 284.

[3] *Bimetallism in Europe*, p. 125.

precious metals. Pliny, who died 79 A.D., complained that India drew from the Roman Empire not less than 5,000,000 sesterces per year, about $2,500,000. The excess of imports of gold into British India from 1836 to 1904 was nearly $900,000,000, and for the past twenty years has been on the average in excess of $20,000,000 per year.

Adding together these several sums of gold visible or definitely accounted for, we have a total of about $9,100,000,000. This leaves unaccounted for a production of about $1,800,000,000. This is a considerable deficiency, but is probably explained by the burial and loss of gold in times of civil disorder, by consumption in the arts and exportation to the East prior to the nineteenth century, and by unsuspected hoards which still exist in the midst of civilized communities.

The statistics in regard to silver are more difficult to reconcile than those of the more precious metal. The total amount of silver produced from 1493 to December 31, 1903, according to the report of the United States Mint, was 9,333,320,341 fine ounces, representing a value at the United States coining ratio of $12,067,323,300. Of this amount $3,213,200,000 is estimated to be in circulation as money. The annual consumption in the arts has been expanding rapidly, partly because of the increased wealth which permits the moderate investment by the individual required in order to possess articles of silver and partly because of the fall in the gold value of the metal, which has materially reduced the cost of the raw material of such articles. According to the estimates of the Mint Bureau, the amount of silver employed in the arts in the United States has risen from $6,098,000 in 1880 to $25,817,672 in 1903. The average annual consumption of silver throughout the world was estimated by Soetbeer in 1885 at 515,000 kilograms, which would represent a value of about $22,000,000 at the old coinage ratio.[1] The volume of con-

[1] *Bimetallism in Europe*, p. 136.

sumption had risen by 1903, according to careful inquiries made by the United States Mint, to 1,553,204 kilograms, which at the coining value would represent about $63,000,000.[1] If an annual consumption of $35,000,000 is computed for fifty years, the amount of silver thus absorbed stands at $1,750,000,000.

Abrasion probably represents a smaller percentage of loss in the case of silver than in that of gold, because of the greater bulk of the cheaper metal. The exports of silver to India have been even larger than the exports of gold, having amounted from 1836 to March 31, 1904, to a value of $1,990,000,000.[2] This greater absorption of silver in India partly offsets the smaller consumption of silver than of gold in the arts, but still leaves a margin of nearly $5,000,000,000 between the total production and the stock visible or accounted for. It is probable that another sum of at least $1,000,000,000 might be accounted for by shipments to the East prior to 1836, for which official figures are not available.[3] Even with this allowance there remains unaccounted for an amount of more than $4,000,000,000, which can only be explained upon the disappearance and hoarding of the metal in the same manner as gold.

Consideration of the consumption of the metals in the arts and otherwise is important because of its influence upon the amount left available from the annual production to be added to the monetary stock. It is obvious that if the consumption in the arts is relatively constant,

[1] *Production of the Precious Metals during 1903*, p. 40.

[2] Report of the Director of the Mint on the Production of the Precious Metals during 1903, p. 244. The value of the silver is taken at the coining rate of the silver rupee, which was changed in 1893. At the old rate, the coining value of the silver imported into India would be brought up to above $2,000,000,000.

[3] Humboldt calculated the flow of silver to India and the rest of Eastern Asia at about 25,000,000 piasters annually at the close of the eighteenth century, but Soetbeer considers this estimate too high.—*Bimetallism in Europe*, p. 140.

the amount available for addition to the monetary stock must have varied widely with the variations in the amount produced. So small was the annual gold production during the nineteenth century, prior to the opening of the Californian and Australian mines, that it is doubtful if the annual supply was equal to the annual consumption in the arts and by abrasion. The danger of an inadequate stock was removed after 1850, only to reappear under widely different conditions in the decade ending with 1890. With an average annual production during the latter period of about $105,000,000, the demand for the arts and for export to the East absorbed about $60,000,000, and left available for use as money only about $45,000,000 a year. When, however, the annual production of gold advanced by leaps and bounds after 1890 until it reached $286,000,000 in 1898, and exceeded $300,000,000 in 1899, even if an increase in consumption for the arts is admitted to $75,000,000, the amount left available for monetary use stands in the neighborhood of $225,000,000 per year.

The stock of gold available for monetary uses increased, therefore, more than four times as rapidly with an annual production of $300,000,000 as with an annual production of $105,000,000. The ten years ending with 1890 added only about $450,000,000 to the available monetary stock of gold, to be scrambled for by many nations which were expanding their commerce and seeking to strengthen the basis of their monetary systems.[1] How this relative scarcity of gold led to fears of falling prices of commodities and a strong agitation for reopening the mints of leading civilized states to the free coinage of silver, will be

[1] Lord Aldenham put the consumption from 1873 to 1893 at two-thirds of the total product, leaving only about $705,000,000 (£145,000,000) available for monetary uses over a period of twenty-one years.—*A Colloquy on Currency*, p. 176. This estimate of consumption seems rather high, but the net balance available for money in civilized countries would not be far wrong if exports to India were deducted.

discussed hereafter. It is intended here merely to state the facts relating to supply. These facts show that the production of gold during the ten years ending with 1902 was more than the production of the entire twenty years preceding. But the effect of this production on the stock of gold available for money was still more striking. Where this amount had been perhaps $450,000,000 for the ten years ending with 1892, it swelled during the next ten years to not less than $1,500,000,000—or nearly forty per cent. of the entire stock of gold money in existence in 1893.[1]

This stock of new money found its way in large measure into bank reserves. The net increase in such reserves in Europe and in the national banks and the Treasury of the United States, from 1892 to 1902, was about $950,000,000. This was an increase in the short term of ten years of more than sixty per cent. of the stock of gold laboriously accumulated by these banks during the many years which had gone before. Five countries—the United States, France, England, Russia, and Austria-Hungary—absorbed more than three-fourths of the gold thus added to bank and Treasury reserves. The United States alone took $456,000,000, which was nearly half the increase, and a sum equal to the entire stock of new gold which became available for monetary uses during the decade ending with 1892.[2] The figures in detail are as follows: [3]

[1] These figures, although arrived at in a different way, do not differ widely from those of the increase in the stock of gold money reported from actual inquiries by the Director of the Mint, which was $3,901,900,000 in 1893 and $5,382,600,000 at the close of 1902.—Annual Report, 1893, p. 50; Annual Report, 1903, p. 39.

[2] It is pointed out by Treasurer Roberts, that the proportion of gold to the total stock of money in the United States increased from 36.52 per cent. on July 1, 1897, to 46.52 per cent. on July 1, 1902.—Finance Report, 1902, p. 130.

[3] These figures for Europe are deduced from the returns published weekly by *L'Économiste Européen*. For the United States the figures are those of dates nearest the end of the year in the reports made to the comptroller of the currency — December 9,

STOCK OF GOLD IN BANKS, ETC.

	Dec. 31, 1892	*Dec 31, 1902*
United States Treasury.....	$238,359,802	$617,196,083
United States National Banks	100,991,328	178,147,096
European banks.....	1,198,020,000	1,690,000,400
	$1,537,371,130	$2,485,343,579

The proportion of the new silver devoted in recent years to use as money is less clearly revealed by the official statistics, because a large part of this new metal has been absorbed by the countries of the Orient, regarding whose monetary statistics there is less definite information than for the Western civilized countries. Somehow or other, in spite of the rapid increase in the annual production of silver from 1873 to 1893, and a steady annual production of approximately 165,000,000 ounces per year since that date, the stock of silver produced has been absorbed. After deducting about 65,000,000 ounces for use in the arts and absorption by the Indian bazars, the amount of silver available annually for monetary uses appears to be in the neighborhood of 100,000,000 ounces.[1] A part of this amount goes to the East, which is less definitely accounted for as money than the amount absorbed by the civilized countries of the West.

The most acute crisis in the market for silver was in 1893. Production rose from 89,175,023 ounces in 1883 to 165,472,621 ounces in 1893, representing an increase of

1892, and November 25, 1902. The amounts credited do not include Treasury gold certificates, because this would involve a duplication of the gold held against them in the Treasury, but they include gold clearing-house certificates.

[1] The estimate of future consumption made by the Mexican Commission on International Exchange in 1903 was: "Coinage, 100,000,000 ounces; industries, 50,000,000 ounces; bazar trade in British India, 25,000,000 ounces; total, 175,000,000 ounces."—Report of the Commission on International Exchange, 1903, p. 193. These estimates represent largely the work of Mr. Edward Brush, of Greenwich, Connecticut, technical counsellor of the Mexican Commission, one of the most competent experts on this subject in America.

nearly 100 per cent. within ten years. Just at this moment came three important extraneous influences upon the relations of supply and demand—large sales of silver by Germany; suspension of free coinage of silver in British India; and suspension of silver purchases by the United States. The sales of silver by the German Empire were made chiefly prior to 1878, but some of them were made at later dates, and the fact that the German government held such a large stock of silver for sale constituted a continuing menace to the market.[1] It seemed for a time that silver would no longer be demanded in any considerable quantities for monetary uses. The price fell sharply in June, 1893, from 38¾*d.* to 30½*d.*, and to an average of only 28 13/16*d.* for the whole of 1894.

The downward course of silver was not permanently checked till 1903. It had become evident that, in spite of the general movement in favor of the gold standard, in which Mexico and China finally joined, a large market for silver would continue to be found in providing subsidiary money for gold-standard countries. It was declared by Suess in 1893 that "with the rise of the lower classes, with the increase of wages and of well being, the demand for silver and copper for this reason must everywhere increase, even in gold lands."[2] The coins of these metals circulate more rapidly than those of gold, and will continue to be demanded in increasing quantities. It was supposed when the government of British India suspended free coinage that the demand for silver in India would cease. For several years the mints were closed and demand for the metal was limited to purchases made by the natives at the bazars. It soon became apparent, however, that the

[1] The face value of the coins sold to March 31, 1893, was 672,862,729 marks ($160,141,329), of which 302,500,000 marks was sold prior to October 1, 1877.—*Vide* Report of the Berlin Silver Commission, pp. 33–36.

[2] "The Future of Silver," in *Coinage Laws of the United States*, p. 393.

growth of business in India called for an increase in the stock of money, and the government, influenced by this fact, resumed the purchase of silver bullion for coinage purposes. Between March 15, 1900, and April 4, 1901, there were purchased 50,297,224 ounces at a cost of £6,002,816, an average price of $28\frac{4}{64}d$. Other large purchases were made up to the autumn of 1904, amounting to about 57,000,000 ounces, of which all but a small proportion was purchased at prices above 26*d*. There is no doubt that these purchases contributed to support the price of silver bullion, by affording an outlet for a large part of the production, and that the regularity with which such purchases were for a time made tended to prevent violent fluctuations in the price.[1]

In the gold-standard countries of Europe and America there was a temporary plethora of silver money as the result of permitting it to be brought to the mints for coinage on private account too long after it had fallen below its legal gold value. When this crisis passed, however, and these countries had grown up to their stock of silver, a dearth of small money set in. A convention of the Latin Union in 1897 authorized an increase of the stock of subsidiary silver in France by the amount of 130,000,000 francs ($25,090,000) and by proportional amounts for other countries.[2] While these pieces were to be coined from the five-franc pieces on hand, it became necessary in 1902 for the members of the Union to sanction the purchase of new bullion by Switzerland to the amount of 12,000,000 francs ($2,350,000) to meet her monetary needs.[3] In Germany old pieces of silver are in process of recoinage, but the stock on hand is barely sufficient to meet the needs of the circulation under existing law. It was estimated at the time of the law of 1900, retiring the

[1] *Vide* letter of Sir James MacKay of the Indian government, Report of the Commission on International Exchange, 1904, p. 497.
[2] *Bulletin de Statistique* (January, 1898), XLIII., p. 6.
[3] *Ibid.* (January, 1903), LIII., p. 6.

five-mark gold pieces and raising the limit of subsidiary silver to fifteen marks ($3.70) per capita, that the stock of thalers would be exhausted in eight or nine years.[1] In the Straits Settlements, French Indo-China, and the Philippines the enactment of new coinage systems called for considerable purchases of silver. Even in the United States the dearth of subsidiary silver became a source of frequent complaint, and the secretary of the Treasury declared that "in any event some provision should be made for an increase of subsidiary coin."[2]

From these and other sources a demand has arisen for silver which promises to absorb the annual production and maintain the price near the level of about one-half the old coinage ratio. How far-reaching is the demand for silver coins, even in gold-standard countries, may be inferred from their statistics of coinage. In the German Empire, up to December 31, 1891, the gold coinage was 2,587,100,000 marks in 158,800,000 pieces; the coinage of silver, nickel, and copper was 516,000,000 marks in 1,948,000,000 pieces. That is, while the value of the gold coined was about five times that of the other metals, the number of pieces coined of the other metals was thirteen times as large as the number of gold pieces.[3] In the United States the gold coinage from 1792 to June 30, 1904, was 223,133,266 pieces of the value of $2,582,474,816, while the silver coinage was 1,845,116,585 pieces of the value of $905,370,444.

The variations in the production of gold and silver from time to time have caused speculation as to whether the product was to be sufficient to meet the monetary demands of the world. When the annual gold supply from Latin America fell off early in the nineteenth century, grave fears were entertained that a sufficient medium of exchange to continue transactions upon the old basis

[1] *Bulletin de Statistique* (July, 1900), XLVIII., p. 95.
[2] Finance Report, 1903, p. 46.
[3] Suess, p. 393.

would be lacking. The avalanche of the yellow metal which was poured from the Californian and Australian mines during the decade from 1850 to 1860 caused radical changes of opinion. While gold was eagerly accepted in many countries where it displaced silver, yet the astonishing figures of the annual production led to fears in some quarters that the metal would depreciate too much to be a safe standard of value. Events showed that these fears were unfounded. The counter suggestion, which began to be heard about 1890, after the general adoption of the gold standard in advanced commercial states, that gold was again becoming scarce—was emphatically answered by the opening of the extensive mines of the Transvaal in South Africa.

The large product obtained from the mines of the Transvaal has been chiefly the result of the application of improved methods of mining. When the presence of gold was first reported there was a rush of gold-seekers, who suffered much loss and suffering because there were no alluvial deposits and mining the reefs required capital and special skill.[1] The Transvaal mines would not have been workable at a profit under the mining methods which prevailed a decade or two before their discovery. They consist of low-grade quartz reefs, from which the gold has to be extracted by the cyanide process. According to the older methods the miner had to expect that after he had worked a gold-bearing vein to a certain depth—usually but a few hundred feet below the surface—the gold would cease to be free—that is, it would be locked up in union with iron pyrite and other material, so that it would not amalgamate with quicksilver or yield to other methods which could be economically employed. As Shaler declares:[2]

[1] Raymond, *B. I. Barnato: a Memoir*, p. 108.

[2] "The Future of the Gold Supply," in *International Monthly*, November, 1901; reprinted in *Production of the Precious Metals during 1901*, p. 51.

"Thus, in the mines of the Witwatersrand of South Africa, commonly known as 'The Rand,' the deposits could not have had any considerable commercial importance, but for this method of winning the gold from its association with pyrite, so that the thousands of millions of dollars that have been or are to be obtained from those deposits are in large measure to be accredited to this invention."

These improvements in the art of mining have made available a large supply of gold for many years to come. Estimates of the future of the supply of precious metals have often gone astray because they have not taken into consideration the influence of improvements in methods of extraction. Since these improvements have been actually made, Shaler has estimated that the yield from such a group of gold deposits as that in the Rand is likely within twenty years to exceed $500,000,000 per annum and to be maintained at this or an even greater rate for many decades.[1] More important still are the alluvial deposits in old river-beds and their neighborhood, which have only within a few years come within the range of paying sources of supply. Under the method of extracting the gold by hand labor the deposits rich enough to afford gold in paying quantities were soon exhausted, but this condition had been changed by modern devices for dredging. Gold deposits to the extent of several thousand square miles are believed to be workable by the new

[1] This view is not shared by certain other experts. Thus, it is pointed out by one who has recently made an inspection of the South African deposits that "The gold is known to exist, certainly; but reasons, financial and technical, prevent a simultaneous production from most of the newer mines for five or six years to come. By that time, just as all these newer mines are reaching the producing stage, a number of the present largest producers will be reaching their end, and every year after that several of these big mines will drop out."—London *Economist* (September 17, 1904), LXII., p. 1504.

methods and to be more accessible than gold in quartz reefs, for the reason, graphically set forth by Shaler, "that, while a mine or vein has to be slowly developed by shafts and drifts, with no certainty as to the richness of the material until it is penetrated, a placer, which may be likened to a vein laid upon its side with one of its walls removed, can be promptly explored by pits or drill holes, and at once attacked at as many points as may seem desirable." [1]

In the case of silver the methods of production have changed even more radically than in the case of gold. Mining exclusively for silver has been largely abandoned. The metal has become a by-product of lead, copper, and zinc. While this has in a sense cheapened the cost of producing silver and removed the volume of production in some degree from the direct operation of the principle of supply and demand, it has left production subject to the influence of the combined prices of these several products. It has been estimated that not more than one-fourth of the world's annual production of silver is now derived from silver-mines worked as such, and it was declared in a recent official paper: [2]

"Had it not been for other developments in mineral production and metallurgical operations which have taken place during the last ten years, the supply of silver would long ago have forced much higher prices in order to supply the absolute needs of the world for silver. The demand for and the production of copper has so enormously increased that from this source alone a very large production of silver is obtained. The largest single producer of silver in the United States is a distinctively copper mine. The cheapening of metallurgical processes has permitted of the working of ores, particularly those containing lead and gold in small quantities, to such an extent that from this

[1] *Production of the Precious Metals during 1901*, p. 55.

[2] Memorandum of the Mexican Commission, Report of the Commission on International Exchange, 1903, p. 180.

source also a large proportion of the silver production of the world is obtained."

The new discoveries of the precious metals, or new methods for extracting them from the earth, devised from time to time in the world's history, illustrate a general economic tendency by which the inventive genius of mankind, at a given crisis of industry and production, finds what is most needed to meet the crisis, because the physical and intellectual activities of many men are directed to finding it. The new discoveries of gold have usually come at a time when the gravest apprehensions have been felt regarding the future of the metal.[1] They have been found in countries previously untraversed or unexplored, upon the borderland of civilization. There are probably still such sources of supply in existence which might be opened if the methods of obtaining the metal from low-grade ores had not been so greatly improved. As the matter stands, the pressure to find new gold-fields is much diminished by the large yield from those which have been discovered and are proving productive under new methods of extraction.

The question whether the stock of gold will become excessive has been sometimes debated in recent years, as it was after the opening of the Californian and Australian mines, but there is little reason to anticipate serious results from the operation of such a cause. If the metal becomes so plentiful that its value falls materially in relation to other things, then the relative cost of producing

[1] Thus, just before the South African gold-fields began to be conspicuously productive, the announcement at the Brussels Conference of 1892, that British India would probably adopt the gold standard and the United States suspend further purchases of silver, led Mr. Casasus, one of the delegates of Mexico, to declare that the struggle of these countries for gold "would pump gold out of Europe, rendering the circulation deficient; the stocks of England and Russia would be the first impaired and immediately afterward those of Germany and France."—*Le Probléme Monétaire*, p. 114.

gold in wages and materials will increase and the supply will decline. Under such circumstances the principles will gradually come into play which were applied by Senior to the production of silver when that metal was the chief product of mining instead of a by-product:[1]

"The question whether a given mine shall be worked or abandoned must always be solved by comparing the amount of silver which it produces with the amount of silver which must be expended in working it. If it do not produce more silver than will pay the wages of those who are directly and indirectly employed in working it, it cannot be worked profitably; if it produce less, it cannot be worked at all; if the difference be just equal to the current rate of profit in the country, it will just afford to be worked; if the difference amount to more, it will afford a rent."

Thus it may reasonably be assumed that a large production of the metals beyond the effective demand of civilized society would tend to correct itself and obviate the necessity for the abandonment of gold as the basis of the world's monetary systems.

The great increase in the stock of gold in bank reserves in recent years has not been accompanied by a corresponding increase in note issues, but has been accompanied by a great increase in other forms of bank credits. The production of the yellow metal from 1890 to 1904 was absorbed to the extent of sixty per cent. in bank reserves and in the Treasury of the United States. Even if it is not desirable that absorption by these institutions should continue on so great a scale, it is probable that the gold available for monetary uses will be taken to a considerable extent in the future by countries now upon a paper basis, especially in Southern Europe and Latin America, for the rehabilitation of their monetary systems. Such an event would justify the predi-

[1] *Three Lectures on the Value of Money*, p. 34.

cation of Leroy-Beaulieu, that the outlet for gold is for the next decade indefinitely extensible and that this will mitigate the influence which the approaching avalanche of the metal might otherwise have upon prices.[1] There must be reserved for a future chapter a discussion of the process by which the enlarged supply of the precious metals after 1850 found their way under the law of marginal utility to communities which had the greatest need for them, instead of piling up indefinitely in those communities already well provided with money—a process of distribution likely to be repeated for many decades in ever-widening circles before the point is reached of complete saturation of all countries with metallic money.

[1] *Économiste Français* (October 1, 1904), p. 475. Early in 1905 the Conversion Bureau (*Caja de Conversion*) of the Argentine Republic had already accumulated $71,109,850 in gold and depositors in the banks had titles to nearly $22,000,000 additional. —London *Economist* (May 6, 1905), LXIII., p. 763.

VIII

THE PRINCIPLES OF COINAGE

Meaning and origin of coinage—Relationship between coin and bullion—Significance of free coinage of the standard metal—Does not necessarily involve gratuitous coinage — Abuse of seigniorage charges in early times—Influence of government control over quantity of coins in maintaining their exchange value—Status of coins and bullion in foreign trade—Subsidiary coins not subject to same rules as standard coins.

THE gradual adoption of the precious metals as the best material for money was followed by their conversion into coins. The metals in bars and ingots had the advantages of durability and uniform quality which are essential in money, but they lacked to a considerable degree the qualities of easy divisibility and exchangeability which belong to coins. In ancient times, among the Hebrews and Egyptians, much commerce was carried on by the metals in the form of bullion, which had to be weighed at each important transaction. In many parts of China the merchant still carries at his belt a balance and touchstone, for weighing the silver *sycee* which there serves as money;[1] but one of the first concerns of a modern government is the adoption of a national coinage system.

Coinage consists in dividing a metal into pieces of uniform size and fineness and indicating these characteristics by stamps. The word is derived from *cuneus*, a Latin word meaning a wedge or die for stamping metal, and so

[1] Hervé-Bazin remarks, "One can hardly imagine such rudimentary monetary methods at the ticket-office of a railway or theatre."—*Traité Elementaire d'Économie Politique*, p. 278.

called from the stamp imprinted on the coin. From the Greek term for coin, through the Latinized form *numisma*, has been derived the modern term for the study of coins—numismatics.[1]

Coinage is a more important incident of monetary science than is sometimes understood. It gives to pieces of the precious metals that last touch of perfect exchangeability which is essential to make them money. In the discussions which have taken place between the advocates of the gold standard and those of the double standard stress has often been laid upon the fact that money of full intrinsic value would stand the test of fire—that coins of gold when melted into ingots would not lose any of their original value. As the fact is expressed by Bolles:[2]

"Drop a ten-dollar gold piece accidentally into the fire and the finder can take the lump to the mint, and after it has been ascertained that none has been lost, he will receive another piece therefor."

This statement involves a theoretical truth of the first importance. In practice, however, it would be difficult for the holder of the ingot to exchange it readily and without loss anywhere else than at the mint. He would find that, in order to make it acceptable to the dealer in commodities, it would be necessary to convert it into money.[3] As Marx points out:[4]

"That money takes the shape of coin, springs from its function as the circulating medium. The weight of gold represented in imagination by the prices or money-names of commodities, must confront those commodities, within

[1] *Vide* Hill, *A Handbook of Greek and Roman Coins*, p. 2.

[2] *Money, Banking, and Finance*, p. 13.

[3] This side of the subject is tersely put by George, "A man with a ten-dollar gold piece will find no difficulty in the United States in fairly exchanging it for anything he may happen to want, but he would find much difficulty in fairly exchanging the same quantity of gold in the shape of dust or an ingot, anywhere except at a mint or with a bullion dealer."—*The Science of Political Economy*, p. 515.

[4] *Capital*, p. 100.

the circulation, in the shape of coins or pieces of gold of a given denomination."

A system of coinage is a plan for counting. The coined pieces are simple multiples or subdivisions of a legal unit, even though the unit itself may not be coined.[1] It is in the form of coin that the precious metals represent their highest utility in ordinary transactions. In large transactions, especially in foreign trade, they appear in the form of bars rather than coin, but in such trade they have almost exclusively the character of merchandise rather than the special qualities of money. The precious metals are the merchandise most readily convertible into money by taking the proper steps, but in themselves they do not possess the distinctive character which money has acquired in modern society as the result of the specialization of functions. Bullion constitutes the raw material of coined money. Their relation to each other is thus defined by Meyer:[2]

"As, with reference to the fixed value of a thing, a fabric has a greater worth than the raw material of which it is composed, so also is coin of more value for internal trade than the gold and silver in a raw state; and as the manufacturer adds the cost of manufacturing to the cost of the raw material, so also is the government justified in reckoning with the cost of the material the additional cost of its production, in order to invest the coin in circulation with a higher value than the actual amount of fineness indicates."

So confirmed has become the habit in modern society of employing only coined money as a medium of exchange

[1] Thus the United States discontinued the coinage of the one-dollar gold piece (Act of September 26, 1890); and the Philippine coinage act of March 2, 1903, provided "that the unit of value in the Philippine Islands shall be the gold peso, consisting of 12.9 grains of gold," but made no provision for coining such pieces.

[2] "Theory of the Coin, Coinage, and Monetary System of the World," House Misc. Doc., 45th Congress, 3d Session, p. 19.

that coined pieces have often risen to a considerable premium above their bullion contents in cases where the supply has been limited and the mints have been inaccessible. A regular movement of this sort carried bullion from Australia to England and coin in the opposite direction until Australia was provided with her own mint, and such a movement still goes on between England and South Africa.[1]

When coins are made of the standard metal, so that the metal in the coin represents the value for which it is exchanged, the privilege of free coinage has come in advanced civilized states to be universally established. This means that any holder of the standard metal may take it to the mint and there have it cast into multiples or subdivisions of the standard unit, conforming to the law and stamped with denominations indicating its value. It is this right of the individual owner of bullion to have it freely converted into coin which keeps the coins and the bullion of the same exchange value, weight for weight, and insures to the owner of bullion the certainty that he can have it transformed into legal means of payment. Why this privilege should be open to every holder of the metal is thus set forth by Chevalier:[2]

"The adoption of the precious metals or of one of them only as the material of money signifies that any one may discharge his obligations by means of a proportionate quantity of gold or silver. Hence arises the strict right for every owner of bullion of carrying his property to the mint to have it clothed with the sign which denotes its quality in a manner indisputable by the creditor. The minting of gold

[1] "It sometimes puzzles people to understand how it is that gold should be coming in from South Africa and at the same time being taken out of the Bank for shipment thither. The explanation is simple. Sovereigns are wanted there as a circulating medium, and as there is no mint at the Cape, the coin must be shipped."—Clare, *The A B C of the Foreign Exchanges*, p. 124.

[2] *La Monnaie*, p. 113.

is properly free in England, because gold is there the legal tender, the matter which every creditor desires in payment and which he is bound to receive."

Where free coinage exists, the state does not control the quantity of standard money in use. The quantity is controlled by those who from motives of self-interest bring bullion to the mints to be coined. If there is a demand for coins, bullion is freely brought to the mint; if the supply of coins is excessive, they can be melted up for exportation or conversion into plate, with the knowledge that when the demand for them again arises they can be replaced by bringing back bullion and offering it again for coinage. Thus the control of the supply of standard money is automatic under operation of the rule of supply and demand. The state has what is called a regalian right over the coinage, which in the Middle Ages often meant monopoly, but in a well-regulated state now means only the exclusive privilege of determining whether the money issued conforms to the uniform standard prescribed by law.

Free coinage in the economic sense of the phrase does not necessarily mean gratuitous coinage. As already pointed out, there is a cost involved in converting ingots of the standard metal into money. This cost may be defrayed by the state from the ordinary proceeds of taxation or it may be defrayed by the person who brings the bullion to the mint for conversion into coin. In the former case the conversion of bullion into coin and coin into bullion will be somewhat less hampered, and therefore more frequent, than where a charge is made; but where the charge covers only the bare cost of converting the bullion into coin, there is not serious interference with the free play of the principle of supply and demand for money. In Great Britain gold is nominally coined gratuitously at the cost of the public treasury.[1] The wear and tear of

[1] "In England there is nominally no seigniorage, every one being supposed to be able to get coin at the rate of £3 17s. 10½d.

coin is also provided for by an appropriation from the public funds.[1] This policy contributes to keep the coins constantly up to the standard weight, when, if a charge were made for substituting coins of full weight for those of light weight, there would be a tendency to keep light-weight coins as long as possible in circulation.

When a charge is made for coinage, it is called *seigniorage* or *brassage*. The latter term is usually limited to the approximate cost of converting bullion into coin, while the term "seigniorage" is applied to the retention of a larger proportion of the bullion offered, as a means of profit to the state. The character of such an exaction is well indicated by the origin of the word—from the Latin *senior* and French *seigneur*, meaning a lord. Seigniorage, therefore, is a privilege, like that of personal service and the *première noce*, assumed by the seigneurs in the Middle Ages, having no justification in modern conditions in the minting of the standard coin. The case is different with the bare cost of manufacture. The true distinction in the matter is well set forth by Chevalier:[2]

for every ounce of gold he takes to the Mint, and thus to get the coin *gratis*. But, in fact, every owner of bullion who wishes coin, takes his gold to the Bank of England (which by law must take all gold offered it at the rate of £3 17s. 9d. an ounce) and gets back coin at charges, all told, amounting to about ¼ per cent., preferring to pay this sum of a little over a halfpenny in the pound sterling rather than suffer the delay that else would follow and the consequent loss of interest before he got back the coin from the Mint."—Devas, p. 335.

[1] This is also the case under the German Imperial Coinage Law and the Austro-Hungarian law of 1892. In France the coinage was renewed in 1891 by the withdrawal of worn pieces at an expense to the government of about $80,000.—Pareto, I., p. 246. By the law of 1897, renewing the charter of the Bank of France, the duty of sorting out the light coins and transporting them to the mints was imposed upon the bank at its branches, in order to bring up to a uniform standard of excellence with the coins in and around Paris those circulating in the provinces.—Pommier, p. 341.

[2] *La Monnaie*, p. 91.

"Whenever a government levies a tax on the issue of money, which exceeds the cost of manufacture, it falls into the system which makes of money an arbitrary sign instead of treating it as a merchandise, as it is. Hence all seigniorage should be suppressed. There is a reason, however, for maintaining what was specially called brassage in the old monetary nomenclature, which consisted in recovering the costs of every nature which the manufacture of money imposed on the state. As Mr. McCulloch says, the metal whose weight and fineness are certified by the government by means of coinage has a value beyond that which lacks this guarantee. It is then a simple requirement that the certificate should be charged with its cost."

In mediæval times, when the principles of money were unknown or disregarded, the different forms of coinage charges were abused to add to the royal revenue. Thus, in England the *shere*, or remedy allowed because of the rudeness of the art of coinage, is said to have been availed of by Elizabeth to pay the master of the Mint meagrely, with the understanding that he might recoup himself by making the coins as light as possible within the limits. At the first coinage of gold nobles in 1344, from a pound of gold £15 was made, but 3s. 6d. was retained to cover expenses of mintage and £1 for the king.[1] John Hull, director of the Mint of the Massachusetts Bay Colony, was allowed about one shilling out of every twenty which he coined, and became rich enough to give as a dowry with his daughter her weight in silver shillings.[2] The tendency in modern times has been decisively against such excessive mint charges. With improvement in methods of coinage, it has become practicable to reduce the variation of new

[1] *Vide* Breckinridge, *Legal Tender*, pp. 34, 35

[2] Hickcox, p. 5. Sumner declares that the complaints of the Massachusetts Mint "during the first thirty years do not refer so much to its constitutionality as to the standard of its work."—*Yale Review* (November, 1898), VII., p. 254.

coins from the standard to very narrow proportions. In the United States the coinage of gold is gratuitous, and the departure of the coins from the standard weight is an infinitesimal fraction.[1]

There are many technical details relating to coinage which cannot be discussed in a general work on money. It is important to know, however, that coins are never made out of pure metal. Gold, silver, and copper are always mixed with an alloy, which is designed to give them proper hardness and durability. This factor in coinage is also one which has been abused, in order to make a profit for the coiner by diminishing the proportion of pure metal and increasing that of alloy. In the United States the standard for gold and silver coins is nine-tenths by weight in pure metal and one-tenth in alloy. The alloy of the gold coins is copper and silver and of the silver coins copper.[2]

Under the policy of free coinage it is not practicable for a state to charge materially more than the brassage or cost of manufacture of the coins without deranging its monetary system. If an excessive seigniorage is collected on coins issued under free coinage, the coins will tend to fall from their face value to their bullion value. The fact that the coined money cannot be obtained, except by payment of the full seigniorage for converting bullion into coin, will contribute to keep up the value of such an amount of coin as is required for carrying on transactions, but it will tend also to prevent the melting up of the coins when the amount in circulation becomes excessive. For exportation outside the country where a coin is used, it can have substantially only its value as bullion, but if the coin is used in several countries it may be shipped from one to

[1] "The 'allowance' or remedy for gold of only one one-thousandth in fineness is an improvement; in England and France it is two one-thousandths"—Letter of Ernest Seyd, on the proposed United States Coinage Act, February 17, 1872, Mint Report, 1896, p. 556.

[2] Revised Statutes, § 3514.

the other without being converted into bullion and have a somewhat higher value than the bullion which it contains.

Where a considerable seigniorage exists, it separates the value of the coin from that of the bullion in such a way that the two values may move in opposite directions under varying conditions of supply and demand. Thus in China, in 1900, the large gathering of European and American troops which took place to rescue their legations from peril in Peking caused a great demand for currency. As practically the only currency which the Chinese would accept was the Mexican peso, these pieces of money rose for a time to a price in gold which departed much more than usual from the price of silver. Silver bullion also rose under an increased demand, but as it was less acceptable in many cases than coin, and a considerable period would be required for converting it into coin, the coins were at a marked premium over bullion. The opposite tendency was in operation in the winter of 1902–03, when silver bullion was falling rapidly in gold price. The fall caused such alarm in Mexico as to the future of the silver money, that in the eagerness to obtain gold values for silver the enhanced value of the coin over bullion was ignored and for a time Mexican dollars dropped to a price as low as the bullion which they contained.

These instances of fluctuations in the relations between coined money and bullion illustrate in a drastic way the operation of a general law which, even in the case of coins issued under a light seigniorage, operates within a smaller radius of change in the relations between bullion and coin. When there is a demand for money, the value of coin relatively to bullion rises. It often becomes profitable to convert bullion into coin. If sufficient bullion is not found under such circumstances in bank reserves and other depositories within a country, it is imported from foreign countries. On the other hand, when money is abundant, it becomes profitable to convert it from coin into bullion.

This bullion can be exported in most cases to foreign countries to better advantage than the local currency. Thus, while the variations between the value of a given coin and of the bullion which it contains are slight, they are sufficient to determine the ebb and flow of the precious metals under the operation of the foreign exchanges. They also reflect the state of supply of the bullion markets according to the rule laid down by Meyer:[1]

"It is self-evident that the variations in the condition of the gold and silver market change the relation between bullion and coin. When the supply of gold and silver declines, and the demand increases, then the difference between coin and bullion is small; it may even happen that the value of the two will be equalized, and even that of bullion may rise above coin. If the supply increases and the demand declines, then the difference between coin and bullion becomes greater, and this happens because the value of bullion is really lowered."

How these variations in the demand for gold affect its movement from one country to another, under the rule of supply and demand, must be discussed under the subject of the foreign exchanges. What it is important to note here is simply that in foreign trade metallic money loses much of the distinctive value it derives from being coined and is sought as merchandise in the form of bars. Such bars are preferred to coin because of the greater ease of handling them and the greater uniformity of their weight due to the absence of wear and tear. This fact is taken advantage of, even in nations on a gold basis, by raising the charge for bars when it is desired to husband the national stock of gold. Thus the Bank of France, while compelled to redeem its notes in coin on demand, may charge any price it pleases for bars. The Bank of England also, while paying its notes freely in gold sovereigns, frequently changes the price of bars. The

[1] *Theory of the Coin, Coinage, and Monetary System of the World*, p. 23.

price of bars in "the open market" in London fluctuates according to demand and supply.[1] The usual price of bar gold at the Bank of England is 77*s.* 9*d.* per fine ounce, but this has been advanced as high as 78*s.*[2] The limits of such changes must necessarily be small, however, for when the charge for bars makes them more expensive than the melting of coin, the latter will be gathered for shipment. How this check operates at Paris to prevent an arbitrary charge for bars is thus described by Clare:[3]

"When the exchanges are unfavorable, the usual course is to refuse payment of large sums in gold currency, and to put a premium, varying from one to six per mille, on bars and foreign coin. To impose too high a premium would defeat the Bank's object, because if the exchange rises beyond 25.40 money-changers find it profitable to collect coin and export it; so that the country as a whole would be losing gold, even though the Bank retained its stock."

Gold bars must be converted into coin in order to be available for internal circulation. In the case of countries having large stores of gold, however, held in the central bank or public treasury, the immediate conversion of the bars into coin is sometimes delayed and the bars are available for re-export in case of need without going through the double cost of conversion from bars into coin and back again from coin into bars. Where the demand for gold, moreover, for foreign trade is frequent, as in England and France, the coins of foreign countries are sometimes kept in stock ready for shipment to those countries in case gold is demanded to settle trade balances with

[1] The effort to get bars cheap in coin has even resulted in efforts to depress the price 'by so-called 'wash' sales of small quantities at a price of, say, ¼d. or ⅜d. below the prevailing one."—New York *Evening Post*, September 20, 1902.

[2] "The advance in the price of bar gold at London from 77s. 10½d. to 78s. reduced the gold import point [at New York] from $4.84½ for demand sterling to $4.83."—*Wall Street Journal*, November 13, 1903.

[3] *The A B C of the Foreign Exchanges*, p. 127.

them. This permits the Bank of England to deliver American eagles for shipment to America, and the Bank of France to hold sovereigns for shipment to Great Britain. Sovereigns are indeed a favorite form for carrying metallic reserves in the banks of Europe, because international finance is controlled so largely from London and international settlements are so often made there.

The fact that such coins are held to meet demands for shipment abroad operates to advantage in fixing the price of gold. Trifling as the difference is between the value of a gold coin at different times in the gold coin of another country, this difference—due partly to the cost of conversion and partly to the intensity of the demand for certain coins—is sufficient to permit slight variations in the cost of foreign coins in the national currency. Thus the price for American eagles is raised by the Bank of England when expressed in English sovereigns when it is desired to check the export of gold to the United States. The price of sovereigns is raised at the Bank of France when it is desired to throw obstacles in the way of the movement of gold from Paris.[1] The moment, however, that the price of eagles in London is raised in English money above the cost of buying bars and converting them into eagles, then the measure becomes ineffective, because the exporter of gold will send gold bars, or, if he cannot get them, gold sovereigns, rather than pay an excessive price for eagles. In the United States this resource is not available to any considerable degree, because the Treasury of the United States does not retain and sell foreign coins. All gold brought into the Treasury which is not in the form of American coin is converted into bars. An effort was made in 1891 to check the export of gold by authorizing

[1] "As to imports, the Reichsbank (in Germany) accelerates them by the simple and legitimate expedient of paying a better rate for foreign gold coin than the tariff-price of other state banks, and, in addition, by sometimes bearing the few days' loss of interest incurred in bringing the gold over."—Clare, p. 131.

the secretary of the Treasury to impose a small charge upon the cost of gold bars, which had previously been furnished for their cost in coin.[1] The measure did not prove effective, because the price fixed was such that it was cheaper to export eagles and the Treasury was simply put to the expense of coining bars into eagles to meet the demand for export. Recently the Treasury has put few obstacles in the way of obtaining gold bars. A charge of forty cents for each $1000, about the cost of manufacture, has not prevented the bars being more attractive than coin for meeting foreign demands for gold.[2]

These general principles, however, apply to the coins of the standard metal rather than to subsidiary and minor coins. The standard coins are those composed of the metal which is the standard of value and are themselves equal in bullion value to the amount declared on their face. Subsidiary coins (which are often called token coins, when they are tokens for more than their value as bullion) usually contain metal of less value than that declared on their face. The quantity of these coins demanded in business has to be determined by such arbitrary indications as may be available and the output kept within these limits by government authority.[3] Hence only the standard coins are subject to the free play of the laws of money in trade between nations, and the subsidiary or token coins,

[1] Legislative Appropriation Act of March 3, 1891, § 3.

[2] Shippers have preferred to pay this premium for gold bars instead of obtaining coin in exchange for gold certificates or legal tenders, because the bars were stamped with their actual weight at time of shipment and were of a size and shape less likely to suffer by abrasion during transportation.—*Wall Street Journal*, June 3, 1904.

[3] In England the government issues silver coins whenever requested by the Bank of England; but as the bank is compelled to pay for the coins at their face value in gold, the profit being taken by the government, there is no motive to demand more than will be absorbed by business. On the contrary, there is the strongest motive for the bank not to impair its gold resources by paying them out for token coins which are not needed.

unless under exceptional circumstances, remain within the country where they are issued.[1] The principle which keeps up the value of these coins, when their value depends upon the supply, is that of their marginal utility as a means of carrying on small exchanges. If they could be issued in excess of the need for them—upon the demand of the owners of bullion who desired to make a profit by the difference between their bullion value and their face value—they would tend to decline towards their bullion value. The public convenience is served, however, by maintaining a difference between bullion and face value, for the reasons set forth by Devine:[2]

"There would otherwise be a constant danger that the subsidiary coins would by the fluctuations in their value come to exceed that of the standard coins. It would then become profitable to melt down the silver, nickel, or bronze coins for their bullion, which would be more valuable than the coins. This is not illegal, as is the reverse process, and it is to prevent this that the subsidiary coinage is generally slightly overvalued in the coinage. It is much easier to prevent dishonest persons from making coins without authority, *i. e.*, counterfeiting, than to prevent the melting down or the carrying out of the country of coins that had risen in value above that of the standard money."

The government, therefore, takes under its own determination the quantity of coins which are not made of

[1] This principle seems to have been understood even in early times. In the seventh century before Christ it is believed that Gyges, king of Lydia, first struck at Sardis electrum *staters* on the Babylonic and Phœnician standards. "The stater of the former weight (167 gr.) constitutes, perhaps, the earliest precedent for the usage of adapting a coinage to the region or object for which it was designed, as this piece is supposed to have been limited in its circulation to the interior, while the Phœnician (about 220 gr.) was reserved for commercial purposes, where the other would not have been acceptable."—Hazlitt, *The Coin Collector*, p. 93.

[2] *Economics*, p. 223.

the standard metal and which in most cases contain less bullion than the exchange value which they represent. This has been especially the case since the fall in the value of silver which began in 1866 and which has now carried the silver coins of the United States and the Latin Union down to less than half the values which they purport to represent. Under free coinage of silver it would be impossible to maintain the value of the coins materially above that of the bullion which they contain. Under government control of the coinage, however, the issues have been so limited that the amount of these overvalued coins has been kept as nearly as practicable within the exact needs of trade. The best regulator of the demand for such coins is to make them exchangeable at the offices of the government for standard coins. This policy is not essential, however, for keeping up their value, if reasonable prudence is shown in fixing the volume of the issues.[1] Compliance with the law of supply and demand, coupled with the acceptance of these coins for public dues, has kept them up to the face value given them by law, and, as the result of the great fall in silver, has created a seigniorage of 100 per cent. over their metal value.

[1] Exchange at par is the policy of the United States, Germany, Austria, and several other countries, but not of the countries of the Latin Union. Pareto suggests that where exchangeability exists, it is immaterial whether the subsidiary coins are made of silver or some much cheaper material.—*Cours d'Économie Politique*, I., p. 247.

IX

THE EVOLUTION OF OFFICIAL COINAGE

The first coinage by individuals or small communities—Efforts of the mediæval governments to acquire the privilege from the seigneurs—The work of private mints in Maryland, North Carolina, and California—Reasons for coinage under government authority—Necessity for guarantees of uniform weight and fineness—Evolution of modern coinage systems from units of weight—The American and Mexican dollar.

GRADUALLY the function of coinage has been assumed by the state as its peculiar prerogative—sometimes in the belief that a profit could be obtained by its exercise, but fundamentally because it has contributed to the convenience of the commercial world that coins should possess uniformity in size and denominations and a guarantee of value more widely known and firmly established than that of the individual. So numerous have been the abuses of this prerogative that a writer has occasionally been found to echo the query of Leroy-Beaulieu, whether it would not have been better that individuals or free associations should have been intrusted with the authority of coining and certifying to the value of money. He suggests that this might have been done by banks of established reputation, and that, even if the government was permitted to coin, contracts might have stipulated for payment by weight of metal instead of in coins.[1] This is substantially the course that has been

[1] "Thus would have been obtained the combined advantages of coined money for ordinary transactions and of the maintenance of the weight of the metal as money of account and as final reg-

pursued where the coinage has become, by accident or design, too variable to be a trustworthy medium of exchange.

The first coinage seems to have been either by individuals or by small communities. It was intended only to give the stamp of weight and fineness to the metal and not to give to it a fictitious value by law. The first coins in both Athens and Rome bore the mark of the origin of the medium of exchange in cattle and other familiar objects by bearing the figures of these animals upon their face.[1] The very language used regarding the money paid by Abraham, "current money with the merchant," shows that it was the mercantile community, and not the government, which determined the standard. The first Greek money of gold was small stamped pieces of bullion. These were of globular, oval, and other forms, as they were left by the imprint of the hammer. Many of them were of different alloys, some containing just enough gold to give a yellowish color to the silver, and bearing all the marks of private mintage. Monograms and private symbols borrowed from the animal and vegetable kingdoms were the marks of special mints, the property of merchants or bankers, and were often accompanied by entire phrases, such as "I am the seal of Thersis—take care not to injure me."[2]

With the concentration of authority in the ancient world under the Persian Empire, Alexander, and Rome, local coinages became less frequent. In the body of his dominions the Persian king was able to prevent the coinage even of silver without his approval. Only where his

ulator of large transactions."—*Traité d'Économie Politique*, III., p. 128.

[1] *Theureau*, p. 23. In a similar manner, silver coins of the shape of shells were used in the north of Burmah.—Ridgeway, p. 22.

[2] The private character of this mintage has been disputed in some quarters, but is strongly sustained by Babelon, *Les Origines de la Monnaie*, chap. iii.

authority could not be efficiently exerted, as on the island of Kypros, were independent coinages common. In Greece, it is declared by Hill, the breaking down of the old traditions of autonomy by Alexander brought about the frank declaration of the royal prerogative.[1] At a later date the chief currency of whole districts like the Peloponnesus consisted of federal coinages, of which the most famous was that of the Achæan League.[2] In the Roman Empire, local issues, both provincial and municipal, lasted into the empire, but by the time of Nero had been superseded by imperial coins.

Even after governmental coinage was adopted, it often bore marks of private bankers, as an indication that the banker gave the guarantee of his stamp to the work of the government mint. These stamps continued to be imprinted upon coins as late as the year 400 B.C., indicating that certain clients were more faithful to the credit of some great house than that of the government. Private coinage was resumed on an extensive scale in the Middle Ages, when centralized government had disappeared. Twelve hundred monetary types of Merovingian Gaul have been preserved, struck in more than 800 different localities, and among them royal and ecclesiastical types are the exception. Students who did not penetrate to the truth of this problem undertook to account for this varied coinage by the wide dissemination of government mints, and expressed surprise at the appearance of the names of so many individuals, in place of that of the Roman emperor, attesting the weight and fineness of gold and silver money.[3] The fact that there were private mints as well as public is suggested by the distinctive title of the mint at Limoges—*publica fiscalis monetæ officina.* The churches and the monasteries also struck money with the products of their revenues and put upon it the names of their religious es-

[1] *A Handbook of Greek and Roman Coins*, p. 82.
[2] *Ibid.*, p. 10.
[3] Babelon, p. 40.

tablishments.[1] Cities and villages followed suit. This varied coinage introduced confusion into exchanges and nearly all contracts stipulated that they should be fulfilled in money of full weight and fineness.

In the Middle Ages the privilege of coinage was associated with that of mining. Both of these were treated by the lawyers as nominally rights of the crown, but were the subject of repeated grants to individuals and corporations. Charlemagne in 805 prohibited any coinage but that of the royal mints, but his successors were neither able to refuse concessions nor to suppress unauthorized minting. An effort was made in the thirteenth century to limit the circulation of the money of the lords to the provinces where they had authority.[2] St. Louis endeavored, as several of his predecessors had done, to substitute purely official coinage for that of the seigneurs—a measure which, in the language of Blanqui, "might have had favorable results if the kings had not abused it to artificially multiply their resources by fraudulent alterations."[3] In 1315 royal letters limited the weight and fineness of the seigneurial coinage in France, and later the policy was adopted of buying back the rights of the seigneurs.[4] When Charles II. revoked the charter of the Massachusetts Bay Colony in 1684, one of the avowed reasons was the creation by the colony of its own mint; but circumstances showed that this infringement on the royal prerogative was not considered

[1] Del Mar declares that "The baronial and ecclesiastical mints of the middle ages, when not authorized by the German Empire, or by the princes of the Western States, were baronial or ecclesiastical only in name; they were really robbers' dens."—*History of Monetary Systems*, p. 6; but, however this may have been, private coinage was a natural step in the evolution of money.

[2] Nys, p. 182. [3] *Histoire de l'Économie Politique*, I., p. 224.

[4] Nys, p. 183. The seigniorage which might be charged by private refiners of gold and silver was fixed by royal decree as late as August, 1757, although attempts had been made in 1692, 1719, and 1723 to replace the private guilds by public officers.—Saint-Léon, *Histoire des Corporations de Métiers*, p. 383.

very grave. The mint had been founded more than thirty years before (in 1652); its operations were allowed to continue for more than twenty years after Charles's restoration, and when an application was made to continue it, under the administration of Sir Edmund Andros, it was referred to the British master of the mint, who reported against it merely upon "prudential considerations."[1] When, eighteen years later, the value of foreign coins circulating in New England was fixed by proclamation under authority of Queen Anne, the values at which they should pass was set forth in terms of New England money or in shillings substantially their equivalent.[2]

Private coinage has reappeared even in modern times where the machinery of official coinage has been defective. "For a long time," Jevons declares, "the copper currency of England consisted mainly of tradesmen's tokens, which were issued very light in weight and excessive in number."[3] The coinage of tokens in Ireland and the North American colonies was farmed out by a decree of George I. in 1722, to Mr. Wood, an iron-founder of Wolverhampton, who claimed to have discovered an alloy suitable for coins, consisting of copper, zinc, and a small proportion of silver. The amount of the Irish coinage was limited to £105,000, but this did not prevent a violent attack upon the system, which discredited the coins and compelled the government to buy back the privilege by a pension of £3000 a year to Mr. Wood for fourteen years.

Private coinage of a less objectionable character was carried on in North America from colonial times down to the middle of the nineteenth century. The Chalmers shilling, coined in 1783 by a goldsmith of Annapolis, was

[1] Hickcox, p. 2.

[2] Davis, I., p. 38. It appears from this author that the pieces were about one-quarter less in weight of silver than the English standard.—*Currency and Banking in the Province of Massachusetts Bay*, I., p. 25.

[3] *Money and the Mechanism of Exchange*, p. 65.

famous in the early history of Maryland. A private mint was established in 1830 by Templeton Reid, of Georgia, in which ten-dollar pieces were coined which were found by the United States assayer to contain gold to the value of $10.06. A mint was established in 1831 by Christopher Bechtler, of Rutherfordton, North Carolina, which coined gold up to 1840, to the amount of $2,241,840.[1] The United States Mint reported in 1851 that twenty-seven different kinds of gold coins, issued from fifteen private mints, had been received and assayed at Philadelphia. California bristled with private mints after the gold discoveries, issuing fine gold coins bearing the names of the makers and passing without objection in exchange. Even copper coins have been the subject of private coinage in recent times. No less than 164 varieties of large copper cents were issued in the United States during the panic of 1837, many of them being made vehicles of political satire against President Jackson.[2]

The universal decision of modern society in favor of coinage by the government rests upon substantial foundations, in spite of the frequency with which the privilege has been abused. One of the reasons which especially justify giving coinage into the hands of the government is thus summed up by Sidgwick:[3]

"The ordinary advantage to the community from competition, in the way of improving processes of manufacture, is hardly to be looked for in the case of coin. It is the interest of the community that coins should be as far as possible hard to imitate, hard to tamper with, and qualified to resist wear and tear, but the person who procured

[1] These and other curious facts may be found in the paper, "Curiosities of American Coinage," by A. E. Outerbridge, Jr., in the *Bulletin of the Free Museum of Science and Art of the University of Pennsylvania* (June, 1898), p. 201.

[2] Falkner, 'The Private Issue of Token Coins," in *Political Science Quarterly* (June, 1901), XVI., p. 317.

[3] *Principles of Political Economy*, p. 446.

the coin from the manufacturer would not be adequately impelled by motives of self-interest to aim at securing excellence in these points, since he would, of course, want merely to pass the money, and not to keep it."

Regulation of money by the state put a stop at once to the frauds practised by goldsmiths and private coiners, who presumed upon the general acceptability of money and the ignorance of many who received it to gradually reduce the amount of pure metal in the coin. In the Greek cities of Asia Minor the private coinage was mainly of electrum, which was a mixture of gold and silver. The proportions of the two metals in the electrum coins varied within the widest limits. Some, almost as yellow as pure gold, contained ninety-five per cent. of that metal. In others, there was scarcely five per cent. of gold against ninety-five per cent. of silver. Specimens have even been found where the proportion of gold was only two per cent., yet differing little in color from those containing sixty per cent. of the yellow metal.[1] Even plated coins, with an interior of lead, were worked off upon the ignorance of the people. Crœsus put an end to these abuses by the demonetization of electrum and the issue of pieces of pure gold or silver. The corruptions of the coinage had finally become such that coined money was no longer an available instrument of exchange or standard of value. Public authority was invoked to cure this evil and to provide a stamp which would give the coin the respect of all citizens, would make the minting of the standard metal a common right instead of the privilege of a few, and would make the value of the coin the equivalent of what it purported to be.

Upon the state, therefore, has gradually devolved the stamping of metallic money, and to some extent control over its issue. In early times, when the various trades were controlled by guilds and the general rule in commerce was that of monopoly of privileges, the authority

[1] Babelon, p. 155.

to issue coins was treated by princes as a monopoly. So long as the quantity of coins to be issued was determined wholly at their pleasure, they found a profit in debasing the pieces from time to time and thereby increasing the number which could be produced from a given quantity of metal under the old denominations. With the advent of more enlightened knowledge of the functions of money, the privilege of the state has been restricted to something like that of the custodian of weights and measures—not the power to control the quantity of instruments used, but simply the power to ascertain that those used are in conformity with the requirements imposed by law.

It is because it is of primary importance that coins should have an exact, unvarying, and unquestionable weight and fineness that coinage has been brought to a high state of mechanical perfection and placed under so many official safeguards in modern civilized countries. The earliest coins were simply bullets of metal, oval or beam-shaped, having on one side the seal of the community or individual responsible for the purity of the metal and the exactness of the weight.[1] But such pieces lent themselves easily to alterations by others and to debasement by their issuers. Gradually were introduced stamping on both sides, hammering the pieces instead of moulding, and milling the edges. A silver coin of Charles IX. of France, issued in 1573, is said to have been the first which was marked with a legend on the edge. English coins were first grained or marked on the edge in 1658 or 1662, when the use of the mill and screw were finally established in the mint.[2]

Careful verification of the weight and fineness of coins by official authority has been the rule in highly civilized states. In Athens the coinage was confided to three special officials, of whom one had general charge of the work, another attended to the minting, and the third was

[1] Lane-Poole, *Coins and Metals*, p 11.

[2] Jevons, *Money and the Mechanism of Exchange*, p. 60.

charged with general surveillance. The latter was frequently changed, in order, as Lenormant says, that he might not have time to form ties with those whom he supervised, "which would lead to a complicity which would facilitate fraud."[1] The first Roman magistrate to establish the assay of coins is said to have been Marius Gratidianus. His edict was so popular that a statue of silver was erected in his honor. Long afterwards, in the time of the Emperor Julian (359–61 A.D.), it was ordered that when there was a dispute as to whether a solidus was good or bad, or of proper weight or fineness, it should be examined by a magistrate in each large city.[2] In Great Britain the adherence of the coin to the legal standard is determined by what is called "the trial of the Pyx." A certain number of coins of each denomination are placed after each day's work in a box called the Pyx, and an official board annually makes a rigid test of the accuracy of the coinage. The standard troy pound is kept in the chapel of the Pyx at Westminster. In the United States coins are set aside in a similar manner, and are tested by a committee of citizens appointed by the President and known as the Assay Commission.[3]

Even after money came into general use at the trading centres and official coinage had been adopted by leading European states, gold and silver continued to pass more frequently by weight than by tale, and were admitted into international trade for their intrinsic value rather than for marks impressed upon them by the state. This was the natural result of debasements and wear and tear upon the coinage. It has been only in recent times that the state has assumed in practice the jealous restriction of the national circulation to the national coins and made itself responsible for their maintenance at their legal weight.

[1] *La Monnaie dans l'Antiquité*, III., p. 52.

[2] Grimaudet, *The Law of Payment*, p. 28.

[3] *Vide* report of this commission, Annual Report of the Director of the Mint, 1903, p. 53.

As late as the seventeenth century a homogeneous national money existed only in theory. Commercial states were compelled to be tolerant of coins of other nations, because their own official coinage formed but a small part of the mass of money in circulation and was mingled, especially on the Continent of Europe, with coins of widely varying dates and issued by a multitude of dead and living potentates.

The means of ready publicity and communication were lacking for giving uniformity to the coinage by calling in an old issue and substituting a new. The Vicomte d'Avenel correctly declares that Europe in feudal times, harassed as she was by tariffs, toll-gates, the absence of roads, and other political and economic obstacles to trade, was more cosmopolitan in respect to the circulation of money than Europe of to-day. In 1636 a French Royal edict fixing the official ratio between French standard and foreign money named not less than thirty-eight foreign coins having circulation in law and in fact in France, and these were only a fraction of those in actual use. "By the side of the pistoles of Spain circulated at this epoch other pistoles struck by the princes of Italy, at Parma, at Milan, Florence, Genoa, Venice and Lucca; those of Liege and the Dukes of Savoy and Lorraine; one used the double ducats of Portugal, the *albertus* of Flanders, and the coins of the United Provinces."[1] In the earlier periods of the Middle Ages there had been still greater variety. Besides the coinages of petty European princes, almost infinite in the variations of their weight and fineness, circulated the gold pieces of the Arabian Empire, the ducats of Sicily, and the bezants and constantines of the old Roman Empire at Byzantium.

Voices were raised, even in the Middle Ages, in favor of limiting government interference with the coinage to honest certification of its weight and fineness. Nicolas

[1] *La Fortune Privée à travers Sept Siècles*, p. 56.

Oresme, Bishop of Lisieux, in his celebrated treatise written in the fourteenth century, regarding the invention of money, declared:[1]

"While, for the common convenience, the Prince enjoys the function of signing money and coining it, it by no means follows that the Lord and Prince is or ought to be owner and lord of the money current in his principality; for money is the instrument and medium (*æquivalens instrumentum*) for circulating natural riches among men. Money is hence the true property of those to whom belong such natural riches; for, if any one gives his bread or corporal labor for money, when he receives it, it is his own as much as was the bread or the labor which were in his absolute control."

Hence, argues this sturdy admonisher of princes, in his terse Latin, the object of the image and superscription of the prince is to signify and make known the certainty of the weight, quality, and excellence of the coin, just as the measure of grain, wine, and other things bear his imprint, and any one found to have committed fraud in them is judged a swindler.[2]

The fact that the value of money depended, from the first use of the metals, upon the weight of the metal, is demonstrated by the derivation of the names of the most ancient coins from units of weight. This is the history of the Chinese tael, which is perhaps the oldest form of money still in daily use among millions of people. Fischer declares, "When one speaks of ten taels, it is as if one spoke of the value of ten taels' weight of silver."[3] It is the history also of the Roman coins, which were related to the *libra*, or pound; of the *livre* of the French coinage, from the same root; of the pound sterling of Great Britain; of the *mark*, an ancient name recently revived for the coinage unit of imperial Germany; and of the *peso* of

[1] *Tractatus de Origine, Natura, Jure, et Mutationibus Monetarum*, chap. vi.
[2] *Ibid.*, chap. xii.
[3] *Notes sur la Monnaie et les Métaux Precieux en Chine*, p. 7.

Spain and Latin America (from Mediæval Latin, *pensum*, a weight).

The pound troy (*livre de Troyes*) owes its name to the city of Troyes, whose commercial customs were widely spread in the Middle Ages as the result of the fairs which were held there.[1] Even though the weight of the coin was reduced by successive changes and debasements, until it came to contain only one-seventy-second part of its weight in the time of Charlemagne, it retained the name of *livre* until after the Revolution of 1789, when the passion for baptizing every object with a title suggestive of the new political era led to the adoption for the French unit of the word *franc*. In Great Britain the pound weight originally used as a basis of the monetary system was the Tower pound, but this was superseded under Henry VIII. by the troy pound. The term "pound" has survived many debasements of the coin and is now the official designation of a weight of gold which is only a fraction of its former weight.[2] The memory of the Roman coinage survives in the signs still used for English money—*£.*, *s.*, *d.*, standing for the *libra*, the *solidus* of Constantine, and the *denarius*, or penny.[3] The *solidus* was translated in the Germanic languages into *schilling*, or shilling.

The term "dollar," which was adopted as the name of the unit in the United States, had a different origin. The name "thaler" was a contraction of the German words for the *gulden groschan* or penny of Jochimsthal (*Jochimsthaler gulden-groschpfennig*), so called because first coined, towards the end of the fifteenth century, from the silver obtained from the mines in Joachimsthal (Joachim's Dale). The size of this coin seemed to commend it to the commercial world, and its use rapidly spread over Europe.

[1] *Con.* Puynode, *De la Monnaie, du Crédit et de l'Impôt*, I, p 7

[2] How the term was transferred by usage from a silver to a gold unit is set forth by Carlile, *The Evolution of Modern Money*, p. 21

[3] Lane-Poole, *Coins and Medals*, p. 97.

It was declared in an inquiry into the coinage in Great Britain, in 1638, in complaint against the goldsmiths, that "many thousands of dollars and Spanish money they furnish yearly to merchants that trade for Norway and Denmark, to transport silver for those parts."[1] The large coinage of silver by Spain in Mexico made the *peso*, or dollar, a familiar coin in the Western world, and led to its selection by Jefferson as the unit of the monetary system which was adopted in 1786 by the Congress of the Confederation of the United States.[2]

The adoption of the sign ($) for the dollar is generally ascribed to the designs on "the pillar dollar" (*colonato*), which represented the pillars of Hercules, the ancient name of the promontories on the opposite sides of the Straits of Gibraltar. While sometimes ascribed to the colonial coinage, because of the wide use of these coins in the Philippines and other dependencies of Spain, the "pillar dollar" was in its origin essentially a coin of the mother-country.[3] By a strange coincidence, it befell the nation which had made the widest use of the dollar sign to adopt a new distinctive sign for the coin which superseded the old Mexican dollar in the Philippines. This was the capital P for *peso*, with two horizontal, instead of vertical, lines drawn through it.[4]

In modern times each civilized state has usually adopted a distinctive coinage system of its own. Among the barons of the Middle Ages, to issue their own coins was a mark of independence; among modern nations it has be-

[1] Shaw, *History of Currency*, p. 149. [2] Hickcox, p 46.

[3] Hazlitt, *The Coinage of the European Continent*, p. 512.

[4] *Vide* executive order of Governor Taft, August 3, 1903, Report of the Commission on International Exchange, 1903, p 408. These Philippine coins were familiarly called "Conants," because the system was based upon a report made by the present writer to the secretary of war, November 25, 1901. While this designation was much used to distinguish them from the coins previously in circulation, it had no formal official recognition.

come a badge of national dignity.[1] In the beginnings of modern economy nations have often begun without a national coinage, especially where their resources in the precious metals were not large. This was the case in the United States in their early history. Although a national coinage system was provided for by Congress, the amount of metal brought to the mint was small. English, Spanish, Mexican and other foreign moneys were largely used. This was partly due to the fact that the silver dollars provided for by Hamilton were lighter than the Spanish dollars. They were promptly exported, exchanged in the Spanish-American countries for Spanish dollars, and the latter were brought to the American mint for recoinage at a considerable profit to those making the exchange.[2] When it became apparent that the extensive operations of the mint were not affording the country a stock of currency, but were merely a source of profit to money-lenders, President Jefferson issued his famous order of 1806, suspending the coinage of silver dollars, which remained substantially in operation until the provisions made for reviving the coinage by the Bland Act of 1878.

The value at which the silver coins of Mexico, Peru, Chile, and Central America should pass current in the United States was set forth in an act of June 25, 1834. By a later act of the same year the gold coins of Great Britain, France, Portugal, Spain, Brazil, Mexico, and Co-

[1] Jefferson was even disposed to treat the location of the mint within the country as essential to national dignity.—Hickcox, pp. 51, 52. It has become a frequent custom, however, for the smaller nations to have their coins executed at the well-equipped mints of Philadelphia or Paris. The French mint between 1893 and 1901 executed coinage, apart from that for its own dependencies, for Russia, Greece, Switzerland, Crete, Morocco, Brazil, Venezuela, Guatemala, Haiti, Bolivia, Chile, Monaco, and several other countries.—*Administration des Monnaies et Médailles, Rapport* (1903), pp. 41–55.

[2] Andrew, "The End of the Mexican Dollar," in *Quarterly Journal of Economics* (May, 1904), XVIII., p. 327.

lombia were given recognition; but by the act of February 21, 1857, "all former acts authorizing the currency of foreign gold or silver coins, and declaring the same a legal tender in payment for debts," were definitely repealed.

In the principal countries of the Orient a coin has been employed until recently, which has had, perhaps, a wider use and more interesting history than any other single form of coin in the world. Even the coins of the Roman emperors and the pound sterling of Great Britain have hardly enjoyed a use among so many peoples and for so long a time as the Mexican silver peso. Issued in its original form in 1535 from the Mexican mints, which were then under Spanish authority, it was carried to the Philippine Islands while they formed an appanage of Mexico. From there it penetrated to the Chinese ports,[1] and eventually into Japan, Singapore, French Indo-China, and even to the Russian establishment at Vladivostock. It is not surprising that the Mexican peso should have found such a wide field, in view of the fact that from the fifteenth down to the middle of the nineteenth century more than four-fifths of the silver produced was taken from the mines of Mexico and Spanish America. Mexico had the mines and the mints; Spanish commerce, in the earlier days, had command of the two oceans, and Spanish monarchs were masters of the two Indies.

One of the reasons for the persistence of the use of the Mexican pesos was the comparatively few changes which were made in their weight and fineness. Twice during the eighteenth century they were slightly reduced, but the weight and fineness adopted in 1772 (416 grains, 0.902 fine) has remained undisturbed to our own day through two generations of Spanish rule, and a longer term under the Mexican Republic. In the United States, as Andrew declares:[2]

"During the War of Independence, when the Federal

[1] Chalmers, p. 371.

[2] *Quarterly Journal of Economics* (May, 1904), XVIII., p. 326.

Congress issued bills of credit, they made them explicitly payable in the Spanish dollars; and when a little later the leaders of the new republic set about the establishment of a national currency, Jefferson only expressed the common opinion in declaring that among the various currency units the dollar was 'the most familiar of all to the minds of the people.'"

It is not surprising that a coin so widely distributed throughout the world should have been an object of sentimental attachment in Mexico and should have remained long in use after it had been discarded in other countries. Its gradual abandonment in countries not under the sovereignty of Mexico was due in part to the desire in each country for a distinctive local coinage, but much more directly to the fluctuations in the gold price of silver, which, after 1870, drove one country after another to the definite adoption of the gold standard. This movement was slower in the Orient than in Europe. The United States undertook in 1873 to introduce into China a substitute for the Mexican peso, known as the "trade dollar," but the experiment was ultimately abandoned. Other experiments were made from time to time by the British government, but it was not until 1895 that the Bombay or "Hongkong dollar" was authorized, which became a serious competitor of the Mexican.

Japan, in 1871, issued a silver piece known as the yen, of about the same weight and fineness as the Mexican coin, but it was only in 1897 that she adopted the gold standard and made the circulation of foreign silver coins practically impossible within her limits. Her policy in this regard was followed by the Philippine Islands in 1903, and by the governments of the Straits Settlements (under British authority) and French Indo-China. Even in China sporadic attempts were made from time to time to supplant the Mexican coin by local issues.[1] Thus it came

[1] Chalmers relates that the British government also tried, in 1844,

about by degrees that when Mexico herself proposed, after the issue of 3,500,000,000 pesos from her mints, to suspend the coinage of the old peos and issue a new one upon a gold basis, an official commission was compelled to report that while 100,000,000 ounces of silver are sold annually in London, the sales of Mexican dollars had dwindled to $10,000,000, and that "the market for the Mexican dollar is rapidly disappearing."[1]

So well established has the principle now become that coinage is an act of sovereignty, that the long series of the coins of the popes came to an end with the capture of Rome by the Italians and the end of the temporal power in 1870. Pius IX., whose reign began in 1846, continued until then the traditions of the oldest surviving sovereignty in the world, and the one, perhaps, which has issued the greatest variety of beautiful gold and silver coins. More than 8000 authentic papal coins are known to numismatists, including those of anti-popes, the ephemeral "Good Estate" of Rienzi, and the republics of revolutionary times.[2] It was the aim of many of the earlier pontiffs to ennoble the function of money by the inscriptions which they put upon their coins;[3] but the later issues of Pius IX. conformed closely to those of other countries of the Italian peninsula.

The coinage systems now most widely used are based

to supersede the Mexican coins by the English monetary system, but the Royal Proclamation proved inoperative and in 1854 'it was practically repealed by a decision of the Colonial Chief Justice, that 'when contracts were made in dollars, payment must be made *in such coins* and not in those specified in the Queen's Proclamation of 1844.'"—*A History of Currency in the British Colonies*, p. 374.

[1] *Report of the Commission on International Exchange*, 1903, p 171.

[2] Calboli, "Les Monnaies des Papes," in *La Révue* (August, 1903), XLVI, p. 432.

[3] Those of Innocent XI. bore the words, *Melius est dare quam accipere*, and those of Clement XIII., *Da pauperi*.

upon the decimal system of enumeration. The United States were among the first to adopt this system in the plan enacted by Congress in 1792, in accordance with the recommendations of Hamilton. The gold dollar was made the unit, divisible into ten parts, called dimes, and into one hundred smaller parts, called cents (from the Latin *centum*, a hundred). The French franc, issued in 1803, was subdivided into one hundred parts, called *centimes*, but the unit was of a much lower value (19.3 cents in United States gold). The same system was adopted, although with different names for the unit, by the other countries of the Latin Union—Italy, Switzerland, Belgium, and Greece. It was also adopted by Spain in 1868, although she did not become a member of the Union, and was adopted after their emancipation from Turkey by Bulgaria, Roumania, and Servia. The German Empire adopted the decimal system in 1873, making the mark the unit, worth 23.8 cents in United States gold, and divided into one hundred pfennigs. The states of the Scandinavian Union and Austria-Hungary, in reorganizing their monetary system during the latter part of the nineteenth century, adopted the decimal system with a unit a trifle higher than the franc. Russia, in restoring specie payments in 1897, adhered to the decimal system, and adopted a gold unit called the ruble, worth 51.5 cents in United States currency. Japan has a unit of nearly the same size, also on the decimal system, representing the value of 49.8 cents in American gold; and the new coinage system of the Philippines is approximately the same, with a unit worth fifty cents in American gold, divided into one hundred centavos.

BOOK II

THE PRINCIPLES OF THE VALUE OF MONEY

BOOK II

I

THE IMPORTANCE OF DEFINITIONS

Many controversies on the value of money have been caused by the use of terms in ambiguous or double senses—The meaning of value in relation to money—Proper use and limited significance of "appreciation" and "depreciation" of gold—Different interpretations of value—In what respect is stability desirable in the value of money, in exchange value, labor value, or utility value?—Significance of the quantity theory of value.

PROBLEMS relating to the value of money and the effect of changes in its value upon industry have perhaps caused more controversy than any other problems in economics. The reason for failure among economists to reach substantial agreement on the subject has been due in a large degree to inaccuracy of definitions and the confusion of ideas which has inevitably followed upon conflicting conceptions of the same expression. Among the terms over which these differences have arisen have been the definition of money itself; "the value of money"; "appreciation" and "depreciation" in the value of the money metals and of commodities; "stability of value" of money; and the "quantity theory" of money. It is necessary, in order to conduct an intelligent discussion, to understand the manner in which changes in the value of money are expressed; to ascertain in what sense the term "value of money" is used; to know that the terms "appreciation" and "depreciation" in regard to the precious

metals simply express facts, without demonstrating the reasons for them; and to determine, if stability is desired in the value of money, in what kind of value among several kinds this stability is sought. Our first task, therefore, will be to seek to give a definite form to these somewhat vague conceptions.

The fact has already been set forth that the use of the word "money" in this work, wherever it is used strictly and without qualification, is limited to standard coins having in themselves qualities which give them value in exchange for other articles. The term is not used to include bank-notes and other forms of credit. This distinction is important in discussing problems relating to the value of money. Under modern conditions such discussions centre in the value of gold. The attempt to discuss the value of money by bringing under the definition notes and other forms of credit introduces many elements of confusion, because variations in the quantity of such instruments by no means follow with any precision variations in the quantity of gold. Their existence may be considered as diminishing the demand for metallic money, but not as increasing the supply.

The value of money is fixed by the same principles as those which govern the value of other commodities—supply and demand, as influenced by cost of production. The application of these principles and their interpretation is more difficult, however, in the case of metallic money than in that of other commodities because the terms which express value are themselves terms of money. As money is the usual measure of value, and the standard with which other values are compared, it is difficult to find simple forms of expression for measuring the measure—for comparing the standard. The difficulty is made greater by the fact that value is an intellectual conception rather than a tangible property of matter. It is not possible to point to an object and say that it contains value in a definite amount, as it may be said that it pos-

sesses length or breadth or weight. Value involves comparison with some other object, and is not a comparison of visible qualities, but of the intellectual conception of the relative utility of the object.[1]

The value of diverse objects is measured by a common denominator whose units are expressed in money. When the attempt is made, therefore, to determine the value of money, the determination can only be made by comparison with some other object or series of objects, or by some general intellectual conception. In the case of such objects, diminishing demand leaves excessive visible supplies upon the market, lowers prices, and suggests the wisdom of reducing production. The case is different with metallic money, since the fall in its price is expressed only in the enhanced prices of other commodities, and by reason of its high exchangeability there never appears to be a supply upon the market which cannot be disposed of for its full value. As the condition is expressed by Babelon:[2]

"For iron, lead, copper and coal there are variable quotations in the market upon which they are offered. If they are too abundant, if their outlet is closed, if competition develops, their price falls, the manager of the mine sees his profits diminish and the marketing of his products become more difficult. If he finds he is making a loss, he is forced to abandon the mine or to await at his own risk the return of better days. Quite otherwise is the situation of the producer of the monetary metal. As he has the capacity of converting into cash of legal-tender power all the metal which he draws from his mine, he has always an assured outlet for his product; there is neither rise nor fall for his pieces of twenty francs, whatever the number which he may have struck."

[1] "Naturally, as valuation itself is a less definite conception than the length or weight of a thing, money can measure less absolutely the value of the thing than the meter does for length or the kilogram for weight."—Beaure, p. 17.

[2] *Les Origines de la Monnaie*, p. 285.

This difficulty in reaching a definite conception and obtaining a precise measure of changes in the value of money has led inevitably to confusion in attempting by money to measure changes in the value of other things. It is not precisely, however, because money is more steady in value than other things that it is especially sought. Its value in relation to other articles is as liable to change as the relations between those other things themselves. It is because money confers an option on the holder to choose among all objects in the market that it has special value when other things become less readily exchangeable. As this quality is set forth by Davenport:[1]

"Currency is received in its aspect of general purchasing power, the question of application being ordinarily left to the future. The length of time which elapses between receipt and outlay depends in part upon the character of the individual and his peculiar circumstances, in part upon the industrial and financial conditions of the times. The disposition toward early outlay is at one time especially marked, while at another time the relative advantages of delay are highly esteemed and even exaggerated."

It is the power of universal exchangeability—the command over all other objects, almost unlimited in time and space—which makes the precious metals ardently sought in preference to all other goods on special occasions. They have no such preference on ordinary occasions. The man of intelligence who has capital does not hoard it in the form of gold and silver. He converts it into consumable goods or machinery. The contracts which he holds for the delivery of money to him he is willing to deliver to his bank in return for other similar contracts, which he employs to obtain commodities, and which are cleared against many other such contracts by the mechanism of credit.

There are two forms of stating the demand for money,

[1] *Outlines of Economic Theory*, p. 243.

both of which relate directly to the question of supply and demand. The simplest meaning of the term, "the value of money," is that of the classical economists, who viewed value as the relation between money and prices of commodities. Money was considered as having an increased value when a given volume exchanged for more goods and a diminished value when it exchanged for fewer goods. A high value for money was translated into low prices and a low value for money into high prices, because in the former case less money was required to obtain a given article and in the latter case more money. The value of money was thus properly defined in its direct relations to other goods.

The "value of money," as used in the money markets, has a different sense, but a sense not without scientific justification. Value in this sense is the price of the rental of money, and it is for rental that money is usually required.[1] A high value of money in this sense means that the rate at which money can be borrowed is high; a low value means that the rate is low. A high value indicates that the supply of money is small in proportion to demand, and a low value that the supply is large. Such conditions tend to affect the value of money in the other sense—its exchangeability for goods; but the value in the sense of the rental price is much more sensitive than the value in the sense of command over goods.

The value of money, in the sense of its rental value, is less than that of almost any other commodity. A man who has a special use for it in normal times obtains it for two, three, four, or six per cent.—a much less rate of profit

[1] Pantaleoni makes the proper distinctions and assigns a descriptive name to each form of value. "We must, therefore, avoid confusing the value of money, or its power of exchange, with the Value of the Use of Money, or rate of discount. But still more must we guard against confusing the value of money and discount with *interest*—i. e , the value of the Use of Capital."—*Pure Economics*, p. 227, *n.*

than is expected from the use of other forms of capital. It is when the relations between money and other commodities are changed by the abuse of credit that the money market approaches the condition of the produce or stock markets, when many dealers have sold "short" and are unable to obtain the commodities necessary to fulfil their contracts. Such conditions arise in times of panic when every man seeks to compel the execution of contracts for the delivery of money to him, and seeks to obtain delay in the enforcement of his contracts to deliver money to others.

The value of money in its relation to other goods is properly defined as exchange value. Exchange value in the economic sense of the term is a relationship, and not an inherent quality. The value which is inherent is designated as value in use, and is illustrated by the value of water and the air, which under ordinary conditions do not have a price in money. The quality of exchange value is sharply defined by Jevons thus:[1]

"Value implies, in fact, a relation; but if so, it cannot possibly be *some other thing*. A student of economics has no hope of ever being clear and correct in his ideas of the science if he thinks of value as at all a *thing* or an *object*, or even as anything which lies in a thing or object. Persons are thus led to speak of such a nonentity as *intrinsic value*. There are, doubtless, qualities inherent in such a substance as gold or iron which influence its value; but the word Value, so far as it can be correctly used, merely expresses *the circumstance of its exchanging in a certain ratio for some other substance*."

But even when the term "value of money" is limited to exchange value, there remains a distinction between the different standards by which this exchange value is measured, whether in relation to commodities, in relation to cost of production in labor, or in relation to a composite

[1] *The Theory of Political Economy*, p. 77.

standard made up of commodities and labor. If the meaning of "the value of money" is limited to its mathematical relationship towards commodities, then its value rises when commodities fall in price, and falls when commodities rise in price. In this sense the "appreciation of money" takes place when prices fall; its "depreciation" takes place when prices rise. In many of the arguments which have been made upon the changes in the value of gold and silver in their relation to commodities, confusion has resulted from a failure to appreciate the limitations of such definitions. Variations in the exchange value of an article are indicated by changes in prices, and changes in prices are themselves the index of changes in the exchange value of money. Limiting the discussion to this definition of value it would be futile to argue, for instance, that gold has not "appreciated" in regard to given articles when their prices had fallen, and equally futile to argue that it had not "depreciated" when prices had risen. Only by introducing a different definition of value, which should treat it as a measure of effort or of satisfactions, could it become a subject of argument whether a rise in prices did not indicate a fall in the value of gold, or a fall in prices indicate a rise in the value of gold. The introduction of such a different definition of value is legitimate, but has not always been clearly set forth in discussions of the subject. Confusion has resulted from treating the value of money as exchange value on the one hand, and then proceeding to discuss the question as though the definition of value referred to cost value on the other hand. A fall in the exchange value of money is the same thing as a rise in prices. The two things cannot be separated into cause and effect; but statement of the fact proves nothing as to the cause.[1] But an appreciation of gold

[1] "A fall in the value of money and a rise in prices are not two occurrences, certainly not two occurrences standing to each other in the relation of cause and effect; they constitute a single occurrence described in two different ways. Unless there be a rise in

with reference to commodities may be due to causes having no direct relation to gold, but related to the production or stock of the commodities. If a given commodity has been produced beyond the limits of effective demand, so that there is a surplus stock on the market, its price falls in gold, and it may be said in a sense that gold has appreciated with reference to this particular commodity; but the real cause of the change is obviously not found in the supply of gold, or anything directly affecting that metal, but in influences affecting the commodity which is measured in gold. Equally unrelated to changes inherent in the precious metals is a fall in the prices of commodities which is due to inventions and improvements in methods of their manufacture, which diminish the amount of labor required for producing them. The desire for cheaper commodities is the natural popular expression of the desire for larger results from human effort, but it causes a confusion of reasoning which Walsh thus analyzes:[1]

"It is thought, with or without good reason, that the desired fall in these values, if occurring, should be marked and measured by a corresponding fall in their prices. And this thought necessarily involves the idea that money is to be considered the standard measure, not of exchange value, but either of cost value or of esteem value."

The fact of the "appreciation" or "depreciation" of gold or silver with reference to one or more commodities may, therefore, be admitted in a given case, without carrying the implication, which is so often assumed as inseparably connected with it, that the change is *because* one metal or the other has become unduly scarce or unduly plentiful. We shall see hereafter that "appreciation" of gold with reference to one or several other articles may occur without indicating appreciation in regard to all

prices, there is no fall in the value in exchange of money."—Pierson, I., p. 367.

[1] *The Measurement of General Exchange Value*, p. 488.

articles, and that it may occur because an article has cheapened in terms of human labor rather than because gold has become dearer. The British Gold and Silver Commission suggested the restriction of the use of the words "appreciation" and "depreciation" thus:[1]

"Which is the more accurate expression in any particular case will depend upon whether the altered relation of the commodity to gold has arisen from some change which has affected gold, such as a diminished supply, or some increase of demand owing to its use for purposes for which it was not formerly employed, or whether this altered relation is connected with a change affecting the commodity, such as increased supply or diminished demand."

Whatever may be the scientific merit of such a use of the terms, it would be difficult to adopt it in practice, because the distinctions upon which it is based involve the very propositions which are most hotly disputed by the advocates of conflicting monetary theories.

By the consideration of changes in the relation of the precious metals to other articles is logically invoked another question of the first importance: What kind of stability of value is desired in the standard? That some form or degree of stability is desirable has hardly been denied, even by the most radical advocates of irredeemable paper; but there has been a lack of definiteness in the conception of stability which has brought much confusion into the discussion of monetary problems. The problem of stability relates chiefly to time—that money shall have the same value after one year, after five years, or even after one hundred years, that it has to-day Stability becomes important because money is a standard of deferred payments. It is the commodity in which contracts are expressed The creditor, parting with a given commodity to-day, and accepting a bond to pay in money a

[1] Final Report, pt. ii., par. 19.

year or twenty years hence, desires to know that the money which he now contracts to accept will have at that time approximately the same value which it has today.

What is meant by "the same value?" In many quarters the answer has been "the same power to purchase commodities." At first blush this seems the normal, if not the only intelligent, answer. Upon the failure of gold to conform to these conditions during the generation beginning with 1873 was based an indictment of its justice as a standard of value for deferred payments. The same quantity of gold commanded more commodities than in 1873 in very many of the following years. Hence, it was argued, the owner of gold enjoyed an advantage over the producer of other things, and gold (according to this reasoning) was an unstable and unsatisfactory standard of value.

But presently came the advocates of the gold standard with the discovery that there were other ways of measuring stability than by prices of commodities. They found that for many of the years after 1873 a given amount of gold would command less labor—that wages had risen in terms of gold, while prices of many articles had been falling. Prices had been moving in one direction in relation to gold; wages had been moving in the opposite direction. In relation to certain commodities the appreciation of gold was clear. If it appears, however, that wages were rising in gold during the same period, then, if a definition of its value is adopted based upon its relation to wages, the depreciation of gold is equally clear.

If the proper standard of stability of value in money is its command over labor, then gold has been "depreciating" during the past generation according to this standard while it has been "appreciating" according to the standard based upon the exchange value of goods. Hence emerges the possibility of different tests of stability of value—the commodity standard, represented by prices;

the labor standard, represented by wages. While the commodity standard has had the preference among many of those who have opposed gold monometallism, the labor standard is emphatically approved by Karl Marx, the great advocate of the independence of labor. He declares:[1]

"In order to be able to serve as a measure of value, gold must be as far as possible a *variable* value, because it can become the equivalent of other commodities only as an incarnation of labor-time, and the same labor-time is realized in unequal volumes of use-values with the change in the productive power of concrete labor. In estimating all commodities in gold it is only assumed that gold represents a given quantity of labor at a given moment, as was done when the exchange value of any commodity was expressed in terms of the use-value of any other commodity. . . . If the value of an ounce of gold falls or rises in consequence of a change in the labor-time required for its production, then the values of all other commodities fall or rise to an equal extent. Thus, the ounce of gold represents after the change, as it did before, a *given* quantity of labor-time with regard to all commodities."

Stability of prices would constitute stability of exchange value, but it would be very far from constituting or proving stability of use value or labor value; for, as Kinley points out:[2]

"There may be depreciation of gold not shown in

[1] *A Contribution to the Critique of Political Economy*, p. 77.

[2] *Money*, p. 178. This is put in another way by Loria: "If the cost of all commodities, money included, increases or diminishes in the same degree, as the result of a decline or increase in the general efficiency of labor, the nominal price of commodities will remain constant, notwithstanding the cost of money has actually changed."—"Des Methodes Proposées pour Regulariser la Valeur de la Monnaie," in *Revue d'Économie Politique* (February, 1902), XVI., p. 112.

changed purchasing power. It is possible that the cost of production of gold may diminish and that gold may increase in quantity, but if these changes are accompanied by corresponding changes in the cost of production of goods, there may be no change in prices."

What is the explanation of the phenomenon of falling prices and rising wages? It is very simple. If the productive power of labor remained the same, such a phenomenon would be practically impossible. The true explanation is the increase in the efficiency of labor. If, therefore, a day's labor was made the standard of the value of money, a stable standard would be found in a system of money under which wages remained unchanged, but through the fall of prices their purchasing power over commodities was increased. If the wages of labor, instead of remaining stationary have absolutely risen in gold, then for labor gold has been a depreciating standard, instead of an appreciating one. That is, labor has steadily increased its command over gold.

It appears, therefore, that the question what sort of "stability of value" is desirable must first be answered clearly before dogmatic conclusions can be drawn as to the appreciation or depreciation of gold. It is because there has not been agreement on such an answer, and has not even been a clear conception that there were different standards of stability, that much of the discussion of the subject has been inconclusive. It is not proposed here to undertake a full discussion of the question which standard is preferable. It is possible that a mean of the two curves of the rise in wages and the fall in prices would approximate substantial justice if such a mean were ascertainable and a system could be devised for putting it in force. We shall see, however, in due time, that gold changes in its relation to other things as the result of changes in the manner and quantity of the production of such other things more often than as the result of

changes in the quantity of gold, and that the fact that such changes occur is a powerful factor in directing the activities of men in the right directions and securing a wise distribution of finished products and of new capital.

II

HOW THE VALUE OF MONEY IS DETERMINED

Qualifications of the quantity theory—Changes in the monetary stock affect first those goods most sensitive to price changes and foreign demand—Prices of commodities determined by their marginal utility with reference to one another—Influence of rates of discount and money reserve requirements—Importance of the intensity of demand for particular goods—How it affects their prices in gold.

THE value of money is determined, like that of other commodities, by the principle of demand and supply. This proposition has seemed so simple upon its face that the conclusion was reached by early students of the subject that a change in the quantity of goods without change in the volume of money, or, *per contra*, a change in the volume of money without change in the volume of goods, must result in a proportionate change in the exchange value of goods as expressed in money. Hence developed the quantity theory, expressed by John Stuart Mill in the terms that "the value of money, other things being the same, varies inversely as its quantity; every increase of quantity lowering the value, and every diminution raising it, in a ratio exactly equivalent."[1]

This proposition has a certain basis of truth, but in its application to prices it has been exaggerated, if not perverted. It has been taken to imply that an increase in the quantity of money in a community must result eventually, if not at once, in a corresponding increase

[1] *Principles of Political Economy*, II., p. 30.

in the prices of *all* commodities. The confusion which has so often attended the discussion of the principles which determine the value of money has been due in part to the fact that, as money is the measure of value of other things, the operation of changes in its value is more difficult to follow than changes in the values of other things which seem to be so plainly expressed in terms of money. If the supply of wheat in the world decreases, its value rises in terms of other articles, so long as the supply and demand for all those articles remains unchanged. A given quantity of wheat exchanges for more gold as well as for more cotton cloth. But the fact of a rise in the money price of wheat reacts upon the prices of some other articles, because the demand for other articles changes. The man who has to have wheat in spite of the enhanced price is compelled to reduce his demand for some other article or articles. The entire ratio of exchange between the aggregate of commodities is modified, but not in a fixed mathematical ratio to each. It is the same with money. In a sense, changes in the supply of money are accompanied by changes in the value of the standard metal which is used as money in relation to the whole mass of commodities, if this mass remains stationary in amount. But the manner in which this change of relationship finds expression is essentially different from that set forth by the quantity theory of money.

Between the quantity of money and the prices of commodities, relationship undoubtedly exists.[1] Few would deny that in the same community, under conditions other-

[1] "There is a correlation between the value of money and its quantity, but we shall never succeed in measuring exactly the variations of this inherent value."—Beaure, p. 55. Fisher appears to hold that this is all that is asserted by the quantity theory. The quantity theory, he declares, "does not mean that an increase in the currency will tend to raise general prices in exactly the same degree; but it does assert most emphatically that an addition to the currency will tend to raise general prices in some degree."—*Journal of Political Economy* (March, 1896), IV., p. 248.

wise similar, prices would be higher with a stock of money amounting to $1,000,000 than with a stock of $100,000. The questions which have caused discussion among economists are how this relationship is disclosed, whether it is a dominating factor in determining money prices of commodities, and whether changes in prices are the effect, or are themselves the cause, of changes in the stock of money. The more careful advocates of the quantity theory make the qualification that the principle of the ratio of the value of money to the quantity comes into operation only when other things are the same. It is proposed to show here that by changes in the volume of money there are set in operation, in the very nature of the case, other influences which make it impossible that other things should remain the same, thus destroying one of the premises of the theory.

There is a resistance to a uniform and sudden revaluation of all commodities in terms of money upon every occasion of change in the quantity of money, which results in determining such revaluations according to the principle of marginal utility. The essence of the fallacy which has spread such a troublesome pitfall for many students of the monetary problem has been that all other commodities than money have been treated as a unit. The true principle of the value of money is that, being but one among many commodities, changes in its quantity operate upon its relation to other commodities only under the law of the marginal utility of each. If money, by becoming more plentiful than before, should suffer a decline in marginal utility, then its relation to some commodities would change, but not necessarily its relation to all commodities.[1] The first effect of an increase in

[1] This fact seriously impairs the precise mathematical reasoning of Walras. He admits that "from one moment to another all the elements of the problem are modified," but maintains that at a given moment, other things being equal, if the quantity of money increases or diminishes, prices will rise or fall in proportion.—

the monetary stock would be felt upon those particular commodities whose prices were most sensitive to changes in the money market, and, if the effect were ever felt upon all commodities, it must be long subsequently; yet in nearly all discussions of the subject this obvious operation of monetary principles is inverted, and it is assumed, as an initial hypothesis at least, that the first effect must be general instead of particular.[1]

The quantity theory, as generally presented by those who are not careful students of monetary matters, has the three important defects of putting the cart before the horse, in treating general changes in prices as caused by changes in the quantity of money instead of considering the two phenomena as interacting upon each other; of regarding such changes in prices of commodities as are influenced by changes in the quantity of money as changes in general prices instead of variable changes in particular prices; and of giving a greatly exaggerated importance to this single influence which among many has to be considered in dealing with prices.

Théorie de la Monnaie, p. 46. But throughout his reasoning the fact appears to be ignored that all the new money is not at once offered against all the goods offered in exchange for money. Vethake, who lays down the quantity theory with a good deal of rigidity, admits that "some commodities ordinarily fluctuate in value much less than others, and labor is such a commodity" (*Principles of Political Economy*, p. 150); but he is little disposed to accept the legitimate consequences of this fact.

[1] Thus Sidgwick, usually a careful and acute reasoner, says, "It seems, however, clear that the mere fact that the quantity of money in a country is altered cannot have in itself—*i.e.*, apart from any change in the proportions in which it is distributed—any tendency to alter the quantities or relative values of the commodities which are bought and sold for money, so far as the terms of exchange are settled subsequently to the alteration by competition and not by custom."—*Principles of Political Economy*, p. 245. Yet a few lines further on it is admitted that "the actual process of change in quantity of gold may alter sensibly the distribution of wealth"; and on other points a correct view is taken.

The essential points at issue between those who declare themselves advocates of the quantity theory and those who oppose it, are partly questions of definition, on which the real difference is not so great as might appear,[1] and partly the more important questions of the method in which changes in the quantity of money operate and the degree of importance of such changes in relation to other principles affecting prices. In seeking a sound explanation of an increase of prices, accompanied by an increase in the stock of money, those who reject the quantity theory would seek the reasons, according to Scott, "in changed conditions in the demand and supply of commodities or of gold or of both, and would explain the increase in the volume of the currency as the necessary result of an increase in the demand for money caused by the rise of prices, and in proof would refer to the axiom of monetary science that when prices are high a larger amount of money is needed to effect the exchange of a given number of commodities than when they are low."[2]

Commodities rise and fall in their ratio of exchange with other particular commodities according to the law of marginal utility. Gold is one of these commodities. It is in itself the commodity usually most sensitive to changes in demand. In a sense it is *par excellence* the marginal commodity of all others; but the others do not form a compact mass set over against gold. On the contrary, there are other commodities only a trifle less sensitive than gold to changes in exchange value. In foreign trade the surplus of gold in the money market and in bank reserves is the most conspicuous of marginal commodities; but the surplus of other articles may, and often does, respond as quickly as gold to changes in demand and supply.

[1] Thus Laughlin, after quoting a moderate definition of the quantity theory by Carver, declares that "to admit that the value of the standard can be influenced by supply is not to admit the usual quantity theory of money."—*Principles of Money*, p. 339.

[2] *Money and Banking*, p. 61.

It is the prices of these particular articles—not the average prices of all articles—which are most affected by a scarcity of gold.[1] The money prices of some of these articles may change radically from causes connected with the articles themselves, as from overproduction which greatly lowers their marginal utility, or from causes connected with the gold stock, or because deficient bank reserves have compelled an advance of discount rates and forced producers of certain goods to export them at reduced prices in order to realize.

It was the theory of Ricardo that gold would flow to or from a country, according to its requirements, so as to restore its normal value there, and thus maintain the true national share of the money metal. This view is well founded, if the error is eliminated from the usual interpretation of it, that gold stands on one side and the aggregate of all other commodities as a compact, unalterable mass on the other. Surplus stocks of gold in a country, beyond what is required for its ordinary transactions, move easily to another country; but the more seriously the demand for gold trenches upon the usual and necessary stock used as a medium of exchange and for bank reserves, the more this intensity of demand reacts—first upon discount rates, then upon the prices of securities, then upon the most easily exportable of commodities, and finally upon other classes of commodities.

In such movements of securities, as in those of commodities, there is no uniform change of price level, but an infinite variety of changes due to the varying marginal

[1] This principle is partially apprehended by Cairnes, who declares: "The new money can only produce its effects by being made the instrument of demand; and the demand is not distributed indifferently over commodities in general, but is directed towards particular classes of commodities according to the needs and tastes of its possessors." But Cairnes goes on to argue that in process of time "the normal level of both wages and prices is permanently raised."—*Leading Principles of Political Economy*, p. 208.

utility of different items under the changing conditions. The best securities might even advance in price while the more doubtful were declining, because of the higher utility of the former as a means of obtaining money. The fundamental character of foreign trade is an exchange of commodities; and the movement of other commodities acts upon the movement of that particular commodity, gold, in a manner to adjust to the best advantage the reciprocal utilities of each of them. The dominating influence of the commercial movement is well set forth by Whitaker:[1]

"We may forget the titanic underlying force of the balance of trade so long as it keeps its equilibrium. When in its minor vibrations it turns unfavorable and then swings favorable, the influence of the discount rate is a first-rate agency to exercise in the interim some control over the gold flows. In the event that production in the different nations pursues for a period a pretty even dynamical career, the balance of indebtedness may remain in such a state of equilibrium, as far as large tendencies are concerned, that the shipments of gold which do take place are dominated by financial forces. But the rate of discount can be the ruling factor only while the "commercial" forces are quiescent. The national quotas of gold cannot be maintained unless the balance of total indebtedness which lies at the bottom of gold movements in the long run preserves its equilibrium."

Intensity of demand for gold and for other commodities determines, therefore, their reciprocal ratios of exchange with each other; and these ratios can scarcely remain rigid for two successive moments in succession. A large stock of gold, by increasing the supply, diminishes the relative intensity of demand for a given quantity; but the aggregate of gold in the world, or in any one country, is never at any given moment set off for mensuration

[1] *Quarterly Journal of Economics* (February, 1904), XVIII., p. 232.

against the mass of other assorted commodities. A recent writer on money, although going to extremes in his criticism of the quantity theory, gropes towards the true solution of the problem when he declares that "the causes permitting a new export are individual, and not general; are due to relative expenses of production or to changes in relative demand and supply, and not to a general change of prices." [1]

The movements of money, under the principle of marginal utility, are governed to a large extent by the rate charged for its use. If there is a disproportionate increase in the money supply of a country—resulting, for instance, from a large production of gold—this increase finds its first expression by an increase in bank reserves. An increase in reserves increases the loaning-power of banks, and an increase of loaning-power means that more circulating capital is placed at the command of the community for investment. If, however, the loaning-power of the banks is already sufficient, under existing industrial conditions, for the needs of the community, an increase in the supply tends to reduce the value of the use of money. This reduction is expressed in the first instance by a decline in the rate for demand loans rather than by a change in the money prices of commodities. Hence comes about the distribution of money according to its marginal utility in different markets, in the manner indicated by the writer who has been most earnest in denying the force of the quantity theory: [2]

"The new gold is purchasing-power over other things, at home and abroad, just as wheat is; its value at home and abroad is settled in relation to other things in the same general way as is the value of wheat, and by the same general laws of value. If a miner or a country has more gold than is needed for monetary (or non-monetary) purposes, the surplus of it is sold for other things, just

[1] Laughlin, *Principles of Money*, p. 371. [2] *Ibid.*, p. 338.

as in the case of a surplus of wheat. A mining country sends gold to those other countries which, by reasons arising from the demands of business, need more bank-reserves or more gold as a medium of exchange; . . . or if none is needed for monetary purposes, then it goes to the purchasers of plate, of ornaments, and the like."

If the new stock of money remains at home, it enables banks to place additional capital at the command of certain persons for buying materials and machinery for their industries. This increases the demand for such articles, and tends to raise their price. If the rise is sufficient, however, to attract such articles from abroad, the tendency will be, other things being equal, to increase the exportation of the money metal and thereby promote its international distribution. Thus the state of foreign trade is the most sensitive barometer of changes in the relation between money and certain articles, because these articles flow away from those points where their marginal utility is less than that of money to those where it is greater. Their marginal utility is necessarily graded by their price as expressed in money; but it is not the whole mass of commodities which is thus affected at once, but those whose relations to other commodities, among which money is included, have been changed.

Hence arises the important distinction, that there cannot be a change in general prices as the result of changes in the volume of money, but only changes in particular prices. The prices of certain articles may be falling because of overproduction at the very moment that the prices of others are rising because of increased demand. If the stock of money is increased, it may cause a rise in the price of those articles whose marginal utility is greatest under the new conditions. There may be one or more articles which, on the one hand, are not demanded by consumers in the existing state of individual resources, but, on the other hand, might become in large demand if the purchasing power of certain elements in the com-

munity should be increased. This might be the case, for instance, with carriages or gloves. The demand might be small at a certain stage of purchasing-power. It might rise in a marked degree if the purchasing-power of a portion of the community were increased by a small percentage.

Under such circumstances the increase in the quantity of money would first operate to increase the profits of certain manufacturers who dealt with the banks, and their increase of profits would enable them to increase their demand for certain articles. The usual form of stating the effect of a change in the volume of money would imply that the increased demand for commodities would be in the form of a demand for a proportionate increase in all the commodities previously used. This assumption, however, is so contrary to probability that it cannot be safely made the basis of general reasoning. On the contrary, the demand arising from an increased command over capital would almost inevitably be directed into particular channels instead of a general one. The man who was richer than before would not demand an increased stock of wheat and ready-made clothing proportionate to his increase in wealth. He would be more likely to increase his demand for gloves and carriages. Hence the stock of carriages or gloves would become deficient in relation to the stock of gold. In that case the article exported would be gold; carriages and gloves would rise in price, and an increased quantity would be drawn into the country through the channels of foreign trade; but wheat and ready-made clothing would be little disturbed in price.

The demand for gold from abroad would become effective only when its marginal utility was greater than that of any other article which might be imported.[1] It

[1] This idea is expressed in a different form by Pierson: "In countries which acquire their bullion by commerce, bullion has a cost price—is acquired by production. The cost price in this

would not be imported if securities or loans on bills of exchange were more economical. Gold would be exported only when its marginal utility at home was less than that of other articles which might be exported; but, when the marginal utility of these other articles declined in reference to gold by reason of an excessive production of them and a scarcity of gold, then gold would be imported in preference to other articles. In all these cases the changes must necessarily occur by changes in the relation between the marginal utility of a variety of articles, among which gold would be one.

Money is required under normal conditions as a tool of exchange, and not as the ultimate object of exchange. The demand for it as such a tool has much to do with determining its value. If the supply is excessive in its ratio to demand, its value falls; but the manner in which this fall is expressed is very different from a revaluation of the mass of other commodities in the ratio of the change in the quantity of money. The changes in the quantity of money which occur in a well-equipped society are not felt first even in the prices of the most sensitive exportable goods. They are felt in the form of changes in the rate charged for the use of money—by variations of the discount rate. The modern mechanism of credit, of which the discount rate is a part, affords several steps for restoring equilibrium between demand and supply of metallic money before prices of commodities are seriously affected.

The rule that the distribution of money is governed by the rate of discount is to be interpreted somewhat strictly. It is limited to money as a specific commodity, the tool of exchange, and to discount as the rate for short-term loans. The definition is not intended to cover

case is represented by the quantities of labor and capital that have to be applied in order to produce the goods in exchange for which the bullion is supplied from abroad."—*Principles of Economics*, I., p. 375.

all loans of capital nor loans at interest for long terms.[1] The rate of interest is the charge for the use of capital: the rate of discount includes more directly the charge for the use of money. Money is a part of capital; and the two demands—for money and capital—are often confused with each other.

The discount rate and the interest rate are not far apart when there is only a normal demand for money as such, but the discount rate rises far above the interest rate on loans for long terms when an abnormal demand for money makes it more sought after than other forms of capital. It is through the discount rate that the ability and readiness to pay money on demand is maintained by the banks.[2] Ordinary demands for banking accommodation are demands for capital or for transferable credits which can be used in lieu of money for immediate needs.

While the use of gold for money is usually referred to as its use as a "medium of exchange," it is well pointed out by Seager that there is a distinction between the gold actually employed in exchanges and that set aside

[1] "The rate of discount in the short-loan market of a banking centre like London is not to be identified with the rate for loans generally—it is only the rate for special loans between special classes of borrowers and lenders, affected, no doubt, by the general rates obtainable for loans and investments in the country, but nevertheless a thing *sui generis*, and in which there may be great changes without corresponding changes in the general borrowing rates."—Giffen, *Essays in Finance*, II., p. 47.

[2] Joseph French Johnson makes a further distinction between the rate of discount on commercial loans and the call-loan rates of interest, which is of some importance. He declares that "the speculator stands among borrowers as a residual claimant upon capital," getting "temporary control of capital while it is *en route* from the saver to the entrepreneurs." Both the supply and the demand for the residuum fluctuate much more widely than the demand for commercial loans, with the result of wider differences in rates.—*Political Science Quarterly* (September, 1900), XV., p. 500.

in bank reserves. In view of the great increase in such reserves, including those of governments and individuals, his conclusion is probably justified, that, "if all of the different items which should be included could be exactly calculated, it would doubtless be found that the reserve demand for gold is larger than either of the other demands"—for the arts or as a medium of exchange.[1] At first sight it might appear that this is a distinction without a difference, because the reserve gold is in fact in use as a medium of exchange through its paper representatives. If the reserve gold were held dollar for dollar against paper issued in substitution for it, like the gold certificates of the United States, its employment would in fact differ in no essential respect from that actually passing from hand to hand. But the manner in which it is employed in reserves is very different. It is made the basis of credits which sometimes seem indefinitely expansible.

A great diminution of metallic reserves in banks will undoubtedly react upon the discount rate, and, if persistent, upon the prices of those exportable goods of which the supply is verging nearest to overproduction; and a counter-influence of declining discount rates will be felt, other influences being approximately the same, when bank reserves are greatly increased. But considerable changes in the quantity of gold in reserves may take place before any effect is felt upon prices.[2]

That a great increase in the volume of gold in a community will have an influence tending to raise prices, and a great decrease a contrary effect, is not the subject of dispute. The question is how this influence operates.

[1] *Introduction to Economics*, p. 350.

[2] As the proposition is put by Kinley: "Gold is used in making direct payments, and for a reserve to insure solvency. An equilibrium is established between the marginal utility of gold for these two purposes, and then between this equilibrium and the marginal utility of goods."—*Money*, p. 145.

That it operates under the modern organization of industry without any direct mensuration of the mass of goods in money—either metallic money or the combined sum of such money and paper—is the contention of those who deny the sufficiency of the quantity theory. In the case of reserve gold, just discussed, it is obvious that the question is largely psychological. The esteem value of money operates powerfully upon its exchange value. So long as the manufacturer can exchange his products readily for other products at prices which seem to show a net profit, gold has little esteem value in his eyes. He is almost ready to accept the illusions of the advocates of ideal money and the multiple standard, that trade is wholly barter, in which the intervention of real money is a relic of an outgrown superstition. When the fact is brought home to him, however, that his goods have lost esteem value, because of overproduction or for other reasons, and this fall of esteem value in the minds of others finds expression in a lower valuation of his goods in gold, then suddenly rises in his mind the esteem value of real money—the one common form of value which is always exchangeable for other forms of goods. He realizes the force of the maxim of Marx, that whether "labor is useful for others, and its product consequently capable of satisfying the wants of others, can be proved only by the act of exchange." [1]

The reduction of prices which occurs at the time of an economic crisis is not due to trifling changes in the volume of metallic money in the country, nor even to a change in the volume of credit money directly proportioned to the metallic reserves. It is due to the derangement of the ordinary mechanism of credit and constitutes to a considerable extent a demand for money for hoarding rather than as a medium of exchange. The demand for money as a medium of exchange would naturally be

[1] *Capital*, p. 57.

greatly diminished by the cessation of commercial activity, but the demand for hoarding creates the seeming paradox that a country absorbs the largest volume of money when prices are most rapidly falling.[1]

The distinction between the regulation of the movement of money by the discount rate rather than by the prices of commodities is a fundamental one. It is fundamental because of the distinction between money and capital. The fact that money is a commodity, differing in only a few respects from other commodities in the market, has led some economists to endeavor to wipe out the distinction between the money market and the market for capital.[2] But looking to the function of money as a tool, like a freight-car or a canal, it is apparent that the movements of money may be distinct from the movements of capital. In other words, there might be a demand for the tools of exchange when there was a surplus of the objects of exchange, or there might be a surplus of the tools when there was a scarcity of the objects of exchange.

The value of money fixed by the discount rate in any market is the index of its marginal utility there. Higher discount rates in another market indicate that money as such has a higher utility there, and they attract it from the market where its utility is small. Low discount rates indicate that money has a low degree of utility in a given market in relation to the supply. It is the surplus on the

[1] Mongin points out the absurdity of the cruder view of the quantity theory in the observation: "It logically follows that periods of commercial activity are of a nature to lead to a fall of prices, while periods of crises, when exchanges are few, when all industrial life relaxes, should coincide with a general rise of prices—which is precisely the contrary of the reality."—*Revue d'Économie Politique* (February, 1897), XI., p. 150.

[2] Leroy-Beaulieu, for instance, has deliberately adopted the title "Market for available capital" (*Marché des capitaux disponibles*), as caption of one of the departments of *L'Économiste Français*, instead of the expression, "The Money Market," used in most English journals.

margin of supply which fixes the rate for the entire stock. When the surplus of a community consists not only of money, but of capital, the transfer of the surplus to another community takes place in goods as well as gold. But there may be a scarcity of money in relation to the demand when there is a surplus of capital, and the rate for permanent loans has not changed. A flurry upon the stock exchange, which creates a sudden demand for money at a high rental value, does not involve change in the permanent rates for the loan of capital, except so far as the high rate for money may afford the temptation to the capitalist to convert his savings into money instead of keeping them in other forms of capital.[1]

We have seen that the value of money is governed by the principle of demand and supply, but by a somewhat different process from that usually assigned to this principle by advocates of the quantity theory. The side of demand has been chiefly dealt with, because demand for money is more variable and therefore more influential upon its value, over short intervals at least, than changes in supply. Changes in the supply of money have an influence, however, which is felt under certain conditions. It might be said of wheat, as it is said of money, that its value varies inversely to the supply, if by this is meant only that an increase in supply tends to diminish the value of the single unit and a decrease in supply tends to increase the value of the unit. But neither in regard to wheat nor in regard to money is there a definite mathematical relation between an increase in demand and a given supply. It is the supply on the margin which tends to fix the price for the entire stock. A slight deficiency

[1] "If the rate of discount rises, the holders of shares, bonds, stock, and other interest-bearing securities will find it profitable to employ their money in discounting bills rather than in holding the former. Hence sales will take place, with the result of sending down the prices of securities."—Pantaleoni, *Pure Economics*, p. 236.

in the supply of wheat will send the price up by a large percentage;[1] and likewise a slight deficiency of money will cause a marked advance in rates charged for its use and a fall in the price of securities, which represent the command of money over the most sensitive form of commodities.

These facts bring into relief the real factor in fixing the relative value of money and of other articles. This factor is the intensity of demand. Intensity of demand is not governed by the rules of arithmetical progression. The man who needs a loaf of bread does not offer to pay a price ten per cent. higher because the supply has fallen ten per cent., if that fall reduces the available stock below the amount necessary to feed the community. On the contrary, he stands ready to advance his price by much more than ten per cent. The value of money as expressed by the discount rate does not vary in mathematical ratio to changes in the supply. It varies more nearly in the ratio of the changes on the margin between plenty and scarcity. If the reserves of the New York banks fall from $200,000,000 to $160,000,000, discount rates do not advance merely by twenty per cent. as from two per cent. to 2.40; they tend rather to advance in the ratio of the intensity of demand for money. If reserves in the first case were $20,000,000 in excess of legal requirements, and were reduced in the second case $20,000,000 below

[1] "The average price of wheat (per quarter) in the decade 1771–80, in which Adam Smith wrote, was 34*s.* 7*d.*; in 1781–90 it was 37*s.* 1*d.*; in 1791–1800 it was 63*s.* 6*d.*; in 1801–10 it was 83*s.* 11*d.*"—Marshall, p. 254, note. If these great differences are to be ascribed in part to lack of means of transportation, they are nevertheless almost paralleled by the fluctuations of modern times. Thus the average farm price of wheat per bushel in the United States was 50.9 cents in 1895 and 72.6 cents in 1896—an advance of more than forty per cent.; but the decline in production was only from 467,102,947 bushels to 427,684,346 bushels, or less than ten per cent.—*Year Book of the Department of Agriculture, 1899*, p. 760.

legal requirements, rates of discount would be more likely to advance by 100 per cent. (as from three to six per cent.) than in the mathematical ratio of twenty per cent. Although Walras does not grasp the full significance of his own language, he approximates the true principle of the value of money in the declaration that "the relations of value or of prices are mathematically equal to the intensities of the last needs satisfied (or of rarities) for each consumer." [1]

Since this rule is of general application to commodities (including money), it follows that differing intensities of demand for different articles will affect their prices in different degrees under changing conditions. A decreasing rarity of money due to an increase of supply (without corresponding increase of demand) will change its relationship to other articles; but the new relationship established will conform to the intensity of demand for other articles, and will not leave such articles in exactly the original ratio of value among themselves. The intensity of demand for money, indicated by its relations to other articles, operates upon the supply by diminishing the employment of the metals in the arts when the metals are scarce, thereby increasing the amount available for money, and by increasing their employment in the arts when they are plentiful, thereby diminishing the amount turned into money. At this point, therefore, emerges the influence of cost of production upon the quantity and the exchange value of the precious metals.

Ricardo laid down the rule that "gold and silver, like all other commodities, are valuable only in proportion to the quantity of labor necessary to produce them, and bring them to market." [2] This rule, that value is determined by cost of production, must in the end affect the production of any commodity, but is a rule of much slower and less traceable working in the case of money than with

[1] *Études d'Économie Politique Appliquée*, p. 5.
[2] *Principles of Political Economy*, p. 340.

other articles. The immediate exchange value of articles in the market is determined by demand and supply. In the language of an English student of monetary problems:[1]

"The position of a commodity in the scale of value is the outcome of a comparison between the demand for it and its supply. Which of the two contributes the larger share to its value depends, chiefly, upon the nature of the commodity. The value of a perishable commodity, such, for example, as fish, or even grain, the demand for which varies within narrow limits, fluctuates in prompt accord with the fluctuations of the supply. When, like the precious metals, a commodity is practically imperishable, its stores act as a distributing reservoir, and its value fluctuates with the level of the reservoir, and is but slightly, if at all, affected by the supply, the volume of which bears a constantly diminishing proportion to the reservoir which it feeds. In these cases it is the demand which chiefly governs the value, the supply being always an offer, and, under ordinary circumstances, practically free from fluctuations."

Cost of production becomes a factor in determining value when the supply of any article becomes so far excessive as to reduce the value in exchange below the cost of production. Production may then be arrested and the supply reduced, with the ultimate effect of raising the exchange value of the supply in the market. This time comes in the case of gold and silver when the increased cost of machinery and labor make unprofitable the extraction of the precious metals from the poorer mines. Such mines may then be abandoned and production diminished. Production will be stimulated again as diminution of the supply makes it unequal to the demand

[1] Memorandum by R. B. Chapman, C.S.I., Secretary to the Government of India in the Department of Finance and Commerce, submitted to the Indian Currency Committee.—Fifty-third Congress, Sen. Misc. Doc. No. 23, p. 650.

and raises the marginal value as expressed through the discount rate or through prices.

If gold is rising in value in proportion to other articles which are in demand, then what is produced will exchange for more of these other articles. Hence will come a stimulus to production up to the point where comparative equilibrium will be restored.[1] Hadley well expresses the truth on the subject when he says that, under a system of free coinage of the standard metal, changes in the quantity of money "are *at once a cause and an effect* of changes in general price level. If we have to choose between the two ways of looking at the matter, there is in the majority of cases less error in treating them as an effect than as a cause. The amount of production and coinage of gold is so far affected by changes in the general price level that it tends to adapt the supply of money to the demand and mitigates changes in general prices far oftener than it causes them."[2]

In a rough sense, changes in the volume of money are related to changes in prices of other articles; but, even under conditions as nearly static as is conceivable, the time could never arise when there would be a general change of prices bearing a definite ratio to changes in the volume of money. Changes in the ratio of supply and demand, and, therefore, in the marginal utility of one article in relation to all others, must continually interact upon the demand for gold. The demand for gold would be in some degree the resultant of the interaction of the marginal utility of other articles; but no period of transition, however long, and no system of averaging prices, however complete, could ever demonstrate that the prices of all articles had changed between any two dates in any definite ratio to the stock of gold.

[1] "If the amount of gold for which a hat will exchange is less than the amount of gold which could be produced by the work which produced the hat, gold will be produced until an equilibrium is reached."—Davenport, p 238.

[2] *Economics*, p. 198.

III

HOW CREDIT INFLUENCES THE VALUE OF MONEY

Introduces new complications into the quantity theory—Credit instruments largely the product of transactions—How foreign banking credits provide a medium of exchange without movement of gold—Discount rates not uniformly dependent upon stock of metallic money—How changes in conditions of credit may offset changes in money supply—The marginal demand for gold to settle balances.

IT has been found convenient, in discussing the principles by which the value of money is determined, to proceed at first substantially on the assumption that money consists of gold, and that changes in the quantity of gold in a community react directly upon prices of other commodities than gold. With the introduction of other forms of currency and also of credit which is not in the form of currency, new factors are brought into the problem. A mass of currency results, consisting of gold and paper together, whose aggregate movements are influenced by economic changes in much the same manner as the movement of gold would be influenced, if it were the sole medium of transactions; but by the introduction of the new factor the direct relationship between gold and other commodities is more or less modified and obscured. It remains true under the most complicated forms of the modern credit system that radical changes in the supply of gold will react finally upon the prices of some commodities, but the credit system makes this reaction at once more complicated and less direct than if no such intermediary came between gold and goods.

The form of credit which is most directly sensitive to changes in the quantity of gold is that which takes the form of currency—whether government notes, bank-notes, or token coins. It was formerly supposed that these forms of credit—falling within the popular definition of "money"—responded almost automatically to changes in the volume of gold, because such forms of credit were protected by definite reserves of gold. Modern methods of converting capital into negotiable credit have, however, been so multiplied and are so interlaced one with the other that great variations may occur in the quantity of credit extended by banks and trust companies without corresponding variations in the quantity of gold held as reserves. This fact imposes caution upon attempts to argue from changes in the quantity of money to changes in prices or from changes in prices to changes in the quantity of money. Three propositions may be laid down on this head as modifying the tendency towards an exact ratio between gold and prices:

(1) First, that changes in the quantity of gold in a community do not cause exactly corresponding changes in the quantity of currency.

(2) Second, that changes in the quantity of currency do not cause exactly corresponding changes in the quantity of other forms of credit.

(3) Third, that changes in the quantity of currency or of all forms of credit are not accompanied by exactly corresponding changes in prices of commodities.

A variety of forms of credit have taken the place of gold as a medium of exchange in commercial countries and have thereby greatly economized its use. With certain reservations, these forms of credit may be considered as complete substitutes for gold. As such substitutes, they change the relation which would exist between money and commodities if the entire work of exchange were imposed upon gold. As Pantaleoni declares:[1]

[1] *Pure Economics*, p. 240.

"The law of the value of instruments of credit comes to be, that every such instrument is worth as much as the money for which it is substituted, and whose value it has reduced below the level it would attain, if no instruments of credit were in circulation as a medium of exchange."

Ultimately the value of substitutes for gold depends upon gold. They cannot retain a fixed value in gold unless they are exchangeable for it. Hence a definite relation has been assumed between substitutes for gold and the amount of metal held in reserves. In most countries, however, even an approach to definite relationship of this sort exists only between gold and those forms of credit which are used as currency. Other forms of credit, like deposits, checks, bills of exchange, and clearings, operate to economize the use of money without having any definite relationship, fixed by either law or custom, to the stock of gold. These forms of credit, however, do not differ greatly from those which circulate as currency.[1] They are, in effect, promises to pay gold on demand, and it is the business of bankers to see that the stock of gold does not become too attenuated in relation to such promises. It is not the absence of such relationship which it is sought to establish here, but the extremely wide limits within which the volume of gold on the one hand or of credit on the other hand may vary without producing any obvious influence on the other factor.[2]

The bank-note, as we shall have occasion to see hereafter, becomes, when its credit is well established, so

[1] "Deposits should be regarded as bank-notes. They are sometimes not inaptly termed 'notes belonging to the public and held by the bank at the disposal of their owners.'"—Pierson, I., p. 395.

[2] Laughlin declares: "The absolute increase of demand for gold arising from keeping the same percentage of an increasing quantity of deposits is so insignificant compared with the total world's supply of gold, as to be disregarded."—*Principles of Money*, I., p. 128.

complete a substitute for gold that its movements are far from following those of the gold stock either up or down. As Nogaro points out:[1]

"The credit circulation is capable of varying in a certain measure, independently of the metallic stock. From this observation may be deduced, as an incident, that these variations may take place in an opposite direction from those of the metallic stock and in consequence may, in a certain measure, neutralize their effects. Thus, when foreign trade causes a country to lose a certain amount of metallic money, this loss may be compensated by issues of notes or by perfecting the clearing system."

Theoretically a definite relationship exists when, as in the case of the national banks of the United States, fixed reserves are required against deposits. The National Banking Act prohibits any national bank from making a loan or declaring a dividend after its reserve has fallen below the legal limit. In theory, therefore, an export of gold derived from the reserves of the New York banks should be followed by a contraction of four times the amount in deposits, but, practically, the relation cannot be established mathematically, because the proportion of reserves is constantly changing, is usually in excess of legal requirements (although sometimes below it), and because deposits are kept by trust companies, State banks, and other institutions which are not governed by the same reserve laws. Such institutions, in many cases, keep large deposits with national banks which maintain metallic reserves, and there results from this system a duplication of the credit secured by the reserves, which permits great elasticity in expanding and contracting credit and makes it practically impossible to deduce any fixed mathematical relation between credits and gold.[2]

[1] *Le Rôle de la Monnaie*, p. 136.

[2] Thus the specie reserves of the New York Clearing-House

Even more striking is the duplication of credits in England. The Bank of England is there the centre or fulcrum of the entire system of banking credit. Other banks treat deposits in the Bank of England and even money lent on call as cash.[1] Changes in the amount of credit are influenced by changes in the reserve of the Bank of England, just as in the United States they are influenced by the reserves of the national banks of New York. The principal joint-stock banks in England keep their reserves in the form of deposits with the Bank of England, while the country banks in their turn keep their reserves in the form of deposits with the joint-stock banks. Thus one credit is superimposed upon the other, so as to constitute, in the opinion of some critics, an inverted pyramid with a very unstable foundation. Whether this is so or not, it is obvious that with such variations in system and with such duplication of credit as exist in the United States and in England, there can be no mathematical ratio established between the amount of credit and the amount of gold.

These facts are cited to show how complicated is the relationship between gold and credit under modern conditions, and how difficult it would be to seek to ascer-

banks stood for the week ending June 25, 1904, at $240,368,300, as against a similar item for the week ending June 27, 1903, of $163,770,200. With this increase of nearly 50 per cent in specie, loans increased only about 17 per cent. (from $913,746,900 to $1,066,813,200) and deposits about 26 per cent. (from $903,719,800 to $1,143,314,100), while the prices of commodities showed a declining tendency. Net circulation of money per capita throughout the United States increased only from $29.42 on June 30, 1903, to $30.80 on June 30, 1904. These figures go to show that changes in bank reserves do not react promptly and directly upon gold employed as a medium of exchange, and that the movement of prices may be in the opposite direction from that of the amount of bank reserves.

[1] "Cash in hand and money at call are two very incongruous items, but in most of the balance-sheets they are lumped together."—London *Economist* (October 17, 1903), LXI., p. 1749

tain a definite relationship between the quantity of gold and prices at any two different dates in the same country or in different countries. Because of the confusing factors introduced by instruments of credit used to effect exchanges, it would be necessary to modify the factors of the problem by what may be called the method of exclusion or of inclusion—either by eliminating from the problem the influence of other forms of currency or by including them in such calculations.

It was believed at one time, and has been maintained by certain writers in modern times, that if all forms of currency were taken into account, a quantitative relation could be established between such currency and prices. But in view of the great volume of transactions carried on by other forms of credit, like checks upon deposit accounts and book accounts, it becomes clear that the necessary elements of the problem cannot be isolated so as to set all forms of currency over against the movement of goods. Equally impracticable would it be to narrow the problem by eliminating transactions in which actual gold was not employed, and seeking to establish a mathematical ratio between the quantity of money and prices or the quantity of gold and prices.

To contend that the volume of wholesale transactions settled by checks did not influence prices expressed in money, but that such prices were determined by the small number of transactions in which money passed, would be almost a *reductio ad absurdum*. It is the demand for particular goods which determines their price; it is the relation of these goods to others which is expressed by their relative prices. The various forms of credit growing out of such relations may change greatly in amount without any corresponding change in the amount of gold. Such a change, moreover, in the volume of credit instruments may take place without any corresponding change in price.

When changes of prices accompany changes in the

volume of credit, the former are more likely to be the cause of the latter than the latter the cause of the former. This results inevitably from the fact that credit instruments are often created by the exchange of goods. A manufacturer who wishes to buy raw material makes application to his bank for a loan. The loan might be made by handing him gold or by handing him bank-notes. In the latter case, a demand for gold would not be involved unless the bank had already issued notes to the maximum amount allowed against its existing reserve. The usual processs of making such a loan, however, is neither by gold nor by bank-notes. It is by crediting the borrower with a deposit. Against this he may indeed draw checks, calling for gold, but such checks are likely to be deposited in the same bank by those to whom they are drawn or to be balanced at the clearing-house against other checks placed in the hands of the bank for collection.

The operation of transferring the raw materials from the owner to the manufacturer would thus be accomplished without the use of either gold or other forms of currency. It would itself cause the creation of instruments of credit and their final extinction, instead of being influenced by the quantity of such instruments previously in circulation. The mechanism of such transactions would justify the analysis of Lord Farrer:[1]

"As business increases credit-money increases, and if the effect of increasing business is to raise prices, and thus to require an additional quantity of media of exchange, credit increases in proportion, and the additional media are at once forthcoming. Thus the quantity of money in use at any given time depends on business, and not business on money. It is business which creates money, and not money which creates business."

[1] *Studies in Currency, 1898*, p. 182. Lord Farrer in this passage uses the word "money" as synonymous with currency and even with banking credits.

Not only may credit be greatly expanded without calling for an increase in the stock of gold, but conversely there may be an increase in the stock of gold without a corresponding expansion of credit. When a quantity of new gold enters a community already fairly well equipped with a medium of exchange it is apt to find a resting-place in bank reserves. Whether it shall be soon availed of as a basis for increasing loans depends upon the condition of credit. If there is little demand for increased credit, the new gold may lie for a long time in reserves, and eventually be exported without any visible effect in raising prices. Something of this kind occurred in England, when the gold product of South Africa began to reach London in large amounts. From the end of December, 1894, to January 1, 1896, the coin and bullion in the Bank of England rose from £32,547,000 to £44,960,056. This was an increase of more than thirty-five per cent., but prices of commodities, as measured by Sauerbeck, were lower in 1895 than in 1894 and lower in 1896 than in 1895.

The simple truth, which has so often confounded the advocates of the quantity theory in its cruder form, is that prices are much more influenced by the state of industry and of credit than by the supply of the precious metals. If there has been overproduction of certain commodities beyond effective demand for them, a sudden influx of new gold will not restore equilibrium. At such times of depression there is usually more than enough gold in bank vaults for current demands; and there is still more idle capital in the form of banking credits awaiting investment, but hesitating from lack of confidence to accept the investments on the market. The influence of the influx of new gold upon a depressed market would be governed as much by the exact point which had been reached in revival of confidence as by the quantity of new gold. If the collapse of credit had just taken place and the period of prostration had only

begun, the new gold would have little influence in reviving activity, because it could not restore the shattered equilibrium between effective demand and supply of commodities. If, however, the influx of new gold came when the period of depression was nearing its close, and industry were on the eve of revival, the new gold might add a factor to the impulse of reviving activity. To this extent changes in the quantity of gold act upon prices in the manner set forth by Andrew:[1]

"While, then, there is a measure of elasticity in the credit currency, so that in every cycle of trade there are fluctuations in the monetary supply that do not reflect themselves in the amount of credit, nevertheless the quantity of money held by the banks sets a limit beyond which credit cannot be extended, and in the course of every cycle this limit is actually reached. *In the long run, as apart from the cyclic oscillations, the quantity of banking credit is governed by the quantity of money, and each permanent addition to the monetary supply tends in the end towards an increase of credit.*"

The increase in the reserves of the Bank of England from 1889 to 1896 was more than 125 per cent., and if the quantity theory had been operative in its crudest form there must have been an advance in prices in Great Britain which would have convulsed industry and doubled the cost of living. But, in fact, nothing of the kind occurred. Index prices, so far as they afford a guide, were less by more than ten per cent. in 1896 than in 1889. The new gold, instead of causing a revolution in British finance, simply filtered through the channel of the Bank of England to countries where it was more needed as a tool of exchange. Japan was about adopting the gold standard; Russia was increasing her accumulation of the precious metals for the same purpose; and the United States were regaining a position of monetary solvency

[1] *Proceedings of the American Economic Association* (1904), p. 114.

after their long debauch with silver. These countries needed the gold as a commodity to increase their tools of exchange and their reserve funds. They took it from Great Britain, not because they were richer or more powerful than she, but because the marginal utility of gold was greater to them than it was to her with her already sufficient gold currency. Great Britain had more use for the grain, silks, and machinery of other countries than she had for the gold produced by her dependencies, and she accordingly made the exchange according to the marginal utility of gold or of other goods to the various contracting parties.

In the United States the stock of gold money increased by more than 100 per cent. from 1896 to 1903, and the total stock of money increased by nearly fifty per cent. Prices of commodities advanced considerably during this period, but in no such ratio as the increase in the quantity of money. Upon the whole the banks absorbed considerably more than their proportion of the new gold, but absorbed much more from 1897 to 1899 than during later years. Notwithstanding the increase in the stock of money from year to year, the demand for its use outside the banks was so great as to leave a decreasing proportion to be added to bank reserves. Loans and deposits increased until in 1903, when there came a fall of prices for securities and an arrest in the upward movement of commodity prices.

At first blush it might seem that this result was a demonstration of the relation of prices to the stock of money. The question at issue, however, is not whether the stock of money kept pace with the demand for it, but whether changes in the supply of money were in themselves the causes of changes of prices. It is undeniable that periods of industrial activity increase the demand for currency and in most cases the demand for standard money. But the variations in the prices of goods do not follow with any regularity the variations in the stock of

standard money, because elasticity is given to the monetary system by the use of various forms of credit. The employment of credit in a large proportion to metallic money may be compared to the stretching of a rubber band; periods of diminished credit to the relaxation of the band. The length to which the band is stretched will afford no definite indication of the amount of rubber which it contains. Even if it were admitted in theory, with Dechesne,[1] that the apparent changes in the value of money over ten-year periods were due to variations in credit, while the changes over longer periods were due to changes in the quantity of standard money, it would remain true that no safe rule could be framed for separating the one source of variation definitely from the other and thereby determining by prices the real variations in the value of standard money due to changes in its quantity.

Rising prices and increasing stocks of money are incidents of periods of industrial activity, but they are rather manifestations of the effects of common causes than one the effect of the other, and it is far from being the case that one bears a fixed relation to the other. Some of the reasons for an increase at such times in the demand for money are well set forth by Sprague:[2]

"During a period of economic activity, employment is more general and regular; and, even though the rate of wages is at first unchanged, a larger total goes to the non-check-using classes in the community. A greater amount of purchasing power is at their disposal; and that necessitates the withdrawal of a larger amount of money from the banks, either in the form of bank-notes or of the various kinds of money which can be counted as bank reserve. As prosperity is diffused, numbers of people enter the

[1] "Influence de la Monnaie et du Crédit," in *Revue d'Économie Politique* (October, 1904), XVIII., pp. 712–720.

[2] *Quarterly Journal of Economics* (August, 1904), XVIII., p. 52

check-using class, and in so far reduce the demand for actual cash; but they do not appreciably retard the absorption of an increased amount of money by the people. Moreover, the continuance of a period of prosperity increases the demand for money in another way, since after a prolonged period of steady employment multitudes of people, who seldom had money in their pockets for more than a few hours or days after receiving their weekly wages, now have money enough to last through the week, and have at all times a larger amount in their pockets or at their homes."

One of the most important of the influences which counteract the effect of changes in the quantity of gold is the state of credit. If an increase or decrease of the gold stock is to produce a direct and visible effect, the state of credit must be constant. The same willingness to loan must prevail at all times, the same degree of confidence must exist among bankers, the same rate of discount must be open to borrowers (else the number of borrowers will be diminished); the demand for capital must be unchanging, and the entire movement of bank credits and clearings unchanged, except as it is affected by the increased supply of metallic money. Such conditions are never realized. If such absolutely static conditions arose in New York, some incident in Berlin or London or Paris would disturb them by increasing the rate offered for gold in those places and so changing the relations of the money market of New York to that of other parts of the world.

One of the factors which demonstrate that the price of commodities is not determined by the supply of metallic money at a given moment is the movement of money back and forth between the stock exchanges and the money markets under the influence of changes in discount rates. The facility of such transfers has been greatly increased by the use of foreign banking credits. An acute demand for credit, due in part to undue expansion of credit in relation to gold, is often met by the sale of bills of

exchange upon foreign banking houses. These bills are orders by a New York banker, for instance, upon a banker in Berlin, directing him to pay the amount of the bill in Berlin. The buyer of such a bill is supplied with the means of making his payments abroad, and the money which he pays for the bill becomes available in New York for lending in the market. Such bills may be drawn upon a deposit previously made by the New York banker in Berlin, or they may be drawn without such a deposit, upon the faith of the credit of the New York banker. The effect of such operations upon the demand for gold is well described by Nogaro:[1]

"In reality, the bill of exchange is, in international commerce, not only a method of clearing, but an instrument of credit. It not only permits the offset of reciprocal credits for an equal amount, but also obviates the settlement of a difference by giving to the debtor country the means of waiting to effect the payment until it is creditor for an equal amount. Thus the employment of the bill of exchange suppresses the minor oscillations to which the balance of obligations is necessarily subject, by extending according to the needs of the co-exchangers the period during which the adjustment is made. It contributes then to maintain and render more apparent the equilibrium of the balance of trade; but it should be observed that if equilibrium is attained, it is not by the action of metallic money."

The determination whether drafts shall be sold in London on Berlin or in Berlin on London is based upon the rate of discount. The rate of discount is determined partly by the movement of free capital and partly by the demand for money, which is the most concrete expression of free capital. The movement of money under the operation of the charge for its rental—technically called "the discount rate"—is often independent of any direct

[1] *Le Rôle de la Monnaie*, p. 89.

and obvious variations in its exchange value in commodities. Changes in the discount rate attract money for the special purposes for which it is needed by brokers and bankers, who have contracts to deliver money which they may be called upon to fulfil. It is only when the demand for money is the symptom of deeper economic disturbances—in the misapplication or increased demand for circulating capital—that changes in the discount rate are followed by changes in the value of money as measured in commodities. The two influences often accompany one another, but they are not inseparable. The rate of interest is the measure of the rental of capital, and it may happen that an increase in the supply of money is not accompanied by high prices nor low interest rates. As Beaure declares:[1]

"The rate of interest was sufficiently high in the period from 1850 to 1860, when money became so abundant by the influx of the gold of California and Australia; it was, on the contrary, very low in Western Europe during the period 1882–92, although the production of gold, the only actually effective money of the rich nations of Europe, was considerably restricted."

The rate of interest in these cases comprehended the charge for the rental of capital, as well as the incidental demand for the rental of money, and the demand for capital was large in the first instance in proportion to the supply and smaller at the later epoch.

In regard to temporary fluctuations in the exchange value of money, it is clear that they are not controlled by the ratio of the quantity of money to the quantity of goods. There may be a great rise in the value of money without any corresponding reduction of the quantity, and there may be a great fall in its value without any corresponding increase in its quantity. Its value must be measured by the prices of one commodity or several, or by the repre-

[1] *Théorie et Pratique de la Monnaie*, p. 33.

sentatives of such commodities. Taking securities as such a basis for the value of money, the six months of the spring and summer of 1903 witnessed an average decline of perhaps forty per cent. in the price of securities quoted on the New York Stock Exchange. If these titles to property were the gauge of the quantity of money in the United States, then the amount must have decreased by forty per cent. within the brief space of six months. In fact, neither the mass of gold in the world, representing about five thousand millions of dollars, nor the stock of gold in the United States, amounting to about twelve hundred millions, nor the total currency supply of the United States suffered material changes during this period. The total circulation rose from $2,374,353,720 at the end of April to $2,427,394,868, at the end of October, and the *per capita* circulation increased from $29.08 to $29.99.

The changes in the purchasing-power of money which occurred under these circumstances were due to changes in the condition of credit and the demand for capital. With the decline in the quantity of available credit, due to absorption of floating capital in new enterprises, the demand for money became more acute than the demand for securities and, without any decline in its quantity, its purchasing-power over securities was increased.

Such instances go far to demonstrate that changes in the conditions of credit are so wide and frequent as to deprive of value the comparison of prices in order to reveal the effects of changes in the quantity of money. If so, the attempts to demonstrate the quantity theory of money by statistics must be abandoned. It may be true theoretically, and probably is, that, other things being equal, a change in the quantity of money would cause a change in the relation of money to certain commodities. If, however, the changes over a short term of years caused by a large increase or decrease in the stock of money are confused by the more frequent and extreme changes caused by other influences, then it becomes extremely

difficult, if not impossible, to isolate the residuum of the change in the relations of money to prices caused by changes in the quantity of money in existence.

The temporary changes in the ratio of money to goods would, moreover, be found upon almost any reasonable hypothesis to be much more important than the permanent changes. Let it be supposed, for illustration, that within a period of fifty years there was an increase of 100 per cent. in the ratio of the quantity of money to the quantity of transactions in which it was employed. The average increase in the quantity of money then would be two per cent. a year. While a permanent gain or loss of this amount would be a factor of some importance, it is nothing like as great a factor as an advance or fall of prices due to changes in the condition of credit and the relation of production of goods to demand for them. These changes often reach twenty-five per cent. in five years, or five per cent. a year. They would represent, therefore, in the case supposed, an influence more than twice as important as the influence of the gradual increase or decrease of the stock of metallic money. It is interesting to consider how these influences would interact upon one another if they were felt in opposite directions. Let it be supposed that with the gold supply steadily increasing at the rate of two per cent. a year, there was a collapse of credit amounting to five per cent. a year for five years. The result may be set forth in the following table:

YEAR	*Rise of prices by depreciation of gold,* (per cent.)	*Fall of prices by impaired credit,* (per cent.)	*Net fall in prices,* (per cent.)
1890	2	5	3
1891	4	10	6
1892	6	15	9
1893	8	20	12
1894	10	25	15

Thus it would appear that with a steady increase of the gold stock at the rate of two per cent. per year, a decline of prices to the amount of fifteen per cent. in five years

might emerge. On the other hand, if the gold stock were decreasing at the same rate, and credit expanding, we should have just the opposite result—a net increase in prices of fifteen per cent. If both influences operated in the same direction, there might be a rise of prices by thirty-five per cent. or a decline of thirty-five per cent.

In presenting the table it has been necessary to assume a definite foreknowledge of the effect of two conflicting influences. But it is just this assumption which is the thing sought to be proved by tables dealing with the relation of currency to prices of commodities. The method usually employed is that of averaging prices over long periods, upon the theory that the rise of prices due to expanding credit will be in the same proportion in one period as in another. It is obvious, however, that this is an assumption for which evidence is lacking. A number of influences, like the opening of new markets, the disturbance caused by wars and rumors of wars, the difference in the character of speculation at different periods, changes in the economy of money (like the creation of stock-exchange clearing-houses), the different rates of earnings for capital under varying conditions of its supply—all enter into the problem, and make it clear that the ratio of expansion due to credit conditions in one period is not evidence of the ratio of expansion due to such conditions at some other period. So powerful is the influence of change in conditions of credit in modifying the quantitative relations between gold and goods as to abundantly justify the caution given by Keynes in regard to the quantity law of money:[1]

"This is, in a sense, a hypothetical law; it does not enable us to say that whenever there is an actual increase in the quantity of money in circulation there will actually be a rise in prices; nor does it even enable us to say that if we find an increase in the amount of money in circulation

[1] *Scope and Method of Political Economy*, p. 216.

taking place concurrently with a general rise in prices, the latter phenomenon must of necessity be wholly due to the former. For the cause in question is not the only one capable of affecting general prices. Its effects may, therefore, be counteracted by the concurrent operation of more powerful causes acting in the opposite direction, or exaggerated by the concurrent operation of causes acting in the same direction."

IV

THE RELATION OF MONEY TO PRICES

Changes in the quantity of money bear but a small ratio to the total stock—Efforts to ascertain fluctuations in value of money by index numbers—Difficulties and pitfalls of the method—Influences which have reduced gold prices—Fall in labor-cost of commodities resulting from machinery—Reduced cost of transportation to central markets—The rise in gold wages—Influence of increased activity in business and of more rapid movement of credits—Summing up.

IT has been seen that the quantity of money is one of the influences affecting its value, but that it is only one of many influences acting upon the relation of money and other things. We have seen that even if credit were not a factor in modern monetary operations, the effect of changes in the quantity of money would be first felt upon certain goods rather than uniformly upon all goods. We have seen also that the relation of the quantity of money to the quantity of goods is still further complicated by radical and frequent changes in conditions of credit, which are usually much more potent over short periods than the changes which could be produced by changes in the quantity of gold. With these qualifications of the quantity theory of money firmly fixed in the mind, it becomes possible to deal with moderation with the history of prices, and to admit the influence which may have been exerted over long periods of time by changes in the ratio of the quantity of gold to the quantity of goods and of transactions.

One of the reasons why changes in the quantity of

gold or of other legal-tender money are felt in only a small measure over limited periods of time is the small ratio which the production of gold in a single year or in several years bears to the existing stock. If money were a perishable article, so that the whole supply was the product of a single year, then it would be subject to the same violent fluctuations in relation to other things which might be true of wheat, potatoes, or oranges, whose product varies greatly from year to year. But with a production of gold which amounted from 1493 to the close of 1903 to about $11,000,000,000, it is obvious that the effect of small changes in the annual supply would not be immediately felt. The largest production of gold recorded up to the close of 1903 was $325,527,250, in the year 1903, which was about three per cent. of the world's production since 1493. It has already been seen[1] that a considerable portion of the annual production would be absorbed, other things being equal, by increasing demands for gold for the arts, for replacing wear and tear in the money stock, and for increase in volume of business.

This last demand would not be in a definite mathematical ratio to increase of business, but upon the whole a large increase in the number of transactions over a series of years would demand an increasing quantity of gold. With these elements given due weight, it is evident that an increase of three per cent. in a year in the gold stock of the world would be far from implying that the ratio of gold to goods had increased in a corresponding proportion. This could only be true in case the annual production of other things remained stationary in volume, while that of gold advanced. Both gold and other goods are subject to fluctuations in volume of production. The amount of goods produced may in some years more than keep pace with the increase in

[1] Bk. i., chap. vii.

the production of gold, and in other years may fall far behind, but upon the average of a series of years during the modern industrial era production both of goods and of gold has increased.

It is obvious, therefore, that an increase of three per cent. in the stock of gold is not a fact which in itself carries the demonstration of an increase in the ratio of gold to other things. Even if such an increase were conceded, we have seen that the principles governing the value and distribution of money are such that the change would not in any case be uniformly distributed, that the new gold would probably not enter at once into use as money, and that the influence of its increased quantity would be involved with and counteracted by manifold other influences acting upon prices.[1] We shall see hereafter that the new gold, instead of being added to the stock already in use in communities well supplied with money, would probably find its way into communities where the money supply was more scanty and would tend to promote activity of transactions without acting directly in raising prices.

The important movements in prices which have been commonly ascribed to changes in the quantity of gold and silver money have been the advances in prices which occurred in the sixteenth and seventeenth centuries, after the discovery of the treasures of Mexico and Peru; the advance in prices which occurred after 1860, when the mines of California were pouring their treasures into the

[1] Senior, although an advocate of the quantity theory, testifies to the slow influence of changes in production. Writing about 1840, he says: "The slowness with which any alteration in the productiveness of the mines shews itself is strikingly proved by the fact, that civil disturbances have rendered the Mexican mines almost totally unproductive for the last fifteen years, so much so indeed, that silver has been sent to Mexico from Europe, and yet neither the general value of silver, nor its specific value in gold, has suffered any perceptible alteration."—*The Value of Money*, p. 73.

money market; and the check in this advance, which occurred after 1873 and was attributed by the opponents of the gold standard to the scarcity of gold and the abandonment by several countries of silver as their standard of value.

Regarding the first period exact historical data are scanty and are complicated by the radical changes going on in the economic development of England and other countries making large use of money. Upon the whole, there seems to be reason to accept the view of Adam Smith that silver (which was then usually referred to as the standard) fell rapidly in purchasing-power from 1570 to 1640; although it may be possible to dispute the calculations of Hume that prices rose three or four times after the discovery of the West Indies.[1] Jacob put the increase as from 100 to 470.[2] A part of this increase was due to the increased weight of cattle and sheep and to increase in demand for agricultural products arising from the growth of population in cities; but a part was

[1] This influence was not felt seriously until after the opening of the mines of Potosi in 1545. It is declared by Humboldt that, "Whilst the stream of gold and silver flowed from West to East, Spain was merely the channel of communication. But little of it remained in that country."—*The Fluctuations of Gold*, p. 29. It is pointed out by Schoenhof, a pronounced opponent of the quantity theory of money, that the foreign trade of Great Britain in the early part of the seventeenth century was very limited (imports and exports together in 1610 being £4,628,586), and that "it is from foreign trading alone that an influx of specie could be made available to bear on prices."—*Money and Prices*, p. 135.

[2] *Production and Consumption of the Precious Metals*, II., p. 84. Humboldt says that "careful inquiries have shown that in the north of Italy the advance in the price of grain, wine, and oil, from the fifteenth to the eighteenth century, was much less considerable than we might reasonably conclude from what is known to us of England, France, and Spain, in which latter countries the prices of grain, since the discovery of America, have advanced four and even sixfold." — *The Fluctuations of Gold*, p. 30.

undoubtedly due to the increase in the quantity of money, which acted not merely by the increased quantity of metal set over against other things in exchanges, but by the stimulus which was afforded by money to the extension of agricultural and manufacturing production for markets in which their products could be sold for money.

Much more extensive is the material for studying the relation of money to prices in later times, but the conclusions to be drawn from it are none the less a subject of dispute. The effort to determine whether gold had become scarce or plentiful in relation to goods has been made many times through carefully compiled statistics of average prices. Strictly speaking, the fact that the price of any single commodity in a gold-standard country varied from one date to another—as if wheat on May 1, 1900, was eighty cents a bushel, and on May 1, 1901, was ninety cents—would in itself constitute a variation in the relation of wheat to gold. What has been attempted, however, by those who have sought to use statistics of prices to reveal the relation between goods and gold, has been the combination of prices of different articles by a system of averages in order to show that it was gold which had changed in its relation to all commodities, rather than isolated commodities which had changed in their relations to gold. Minute, laborious, and ingenious as these calculations have been, it is doubtful if they have produced any conclusion more definite or convincing than the purely deductive reasoning by which it is assumed that a large increase in the quantity of money would tend to lower its value by increasing the supply in relation to demand, or that a large decrease would tend to raise its value by diminishing supply in relation to demand.

The system of index numbers, so-called, for comparing changes in prices, was adopted by Jevons in order to reduce to a common basis of comparison prices for widely variant units of different commodities. The method

adopted was to take the monthly prices of certain articles, reduce the monthly prices for each for the year to an annual average, and reduce the differences shown between prices for different years to a decimal scale, determined by assuming the average price for a given year or series of years to represent 100. Thus, if wheat sold in 1860 at $1.20 per bushel and in 1865 at $1.50, the "index numbers" obtained, if prices in 1860 were treated as the base-line, would be 100 for 1860 and 125 for 1865. This method of treating prices enabled Jevons to claim that he had reduced prices of different articles, based upon different units of value, to a common basis of comparison, upon the ground that ratios "are things of the same kind, but of different amounts, between which we can take an average." [1]

Jevons recognized the criticism which would be directed against taking the prices of a single year—that they would be materially influenced by fluctuations in conditions of credit, independently of changes in the quantity of gold. He sought to eliminate this element of disturbance by taking as his base-line the average level of prices for the six years 1845 to 1850, inclusive. Taking the combined prices of these years as the equivalent of 100, he reduced the price of the same articles to a corresponding basis for each year and in this way sought to ascertain the variations from year to year in the average prices of a group of thirty-nine articles, ranging from 89.6 in 1849 to 128.8 in 1857, and backward again to 113.4 in 1862. Admitting the possibility of difficulty due to changes in conditions of credit, Jevons made the following argument: [2]

[1] *Investigations in Currency and Finance*, p. 23. This conclusion is debatable and is subject to many pitfalls in practice. Padan declares, "We are considering relations, and Jevons draws an average between relations, neglecting meantime the objects related, and then he applies the result to the objects."—"Prices and Index Numbers," in *Journal of Political Economy* (March, 1900), VIII., p. 187. [2] *Investigations in Currency and Finance*, p. 48.

"Such a revulsion [of credit] took place in 1857; but, although five years have since elapsed, prices are far from having fallen to their old level. In the last two years especially the dearth of cotton has caused a depression of trade of a formidable character. The lowest average range of prices since 1851 has indeed happened in the last year, 1862; but prices even then stood thirteen per cent. above the average level of 1845–1850; and it is most highly improbable that prices will long continue to fall; yet prices have continually stood above the high point they reached in 1847! *Examine the yearly average prices at any point of their fluctuations since* 1852, *and they stand above any point of their fluctuations before then within the scope of my tables!* There is but one way of accounting for such a fact, and that is by supposing a very considerable permanent depreciation of gold."

This quotation reveals, in a measure, the method pursued by those who depend upon mathematical demonstration to prove changes in the relation of gold to goods. Since this work of Jevons, many other efforts have been made to reduce changes in the value of money to the form of index numbers. Among those who have employed this method most carefully have been Adolph Soetbeer, the London *Economist*, Mr. Sauerbeck, and Professor Falkner, under the authority of the Finance Committee of the United States Senate. These attempts have varied in the degree of elaboration with which the effort has been made to eliminate sources of error. It has been admitted on all sides that such sources of error were possible in the failure to deal with a sufficient number of articles in obtaining averages; in the wide fluctuations in the prices of single commodities due to special conditions; and in the failure in some cases to give due weight to the proportions in which each article might enter into consumption. Notwithstanding efforts to prevent these errors, it has been found that upon the whole the results are not widely different, whether the method employed

has been that of a simple average of a number of articles, or what has been called the weighting system, of giving to each article the proportionate weight to which it would be entitled by its relation to consumption. The most careful and comprehensive studies in some respects were those made under authority of the Senate Committee on Finance by Professor Falkner, but the tables of actual prices are impaired in value by the wide fluctuations in the gold value of the paper currency of the United States prior to the resumption of specie payments at the beginning of 1879. One of the simplest tables, which will serve to illustrate the others, is that of Sauerbeck, which takes average prices for the ten years 1867–77 as 100. Thirty-seven different articles are used, but several in different grades, so that a total of fifty-six items is included. The average index numbers obtained for certain representative years are as follows:

SAUERBECK'S INDEX NUMBERS

(Index numbers for 1867–77 equal 100.)

YEAR	*Total food*	*Total materials*	*Grand total*
1846	95	85	89
1850	75	78	77
1855	101	101	101
1860	98	100	99
1865	91	108	101
1870	93	99	96
1873	107	114	111
1875	100	93	96
1879	90	78	83
1880	94	84	88
1885	74	70	72
1887	70	67	68
1890	73	71	72
1895	64	60	62
1898	68	61	64
1899	65	70	68
1900	69	80	75
1901	67	72	70
1902	67	71	69

The grand total is not necessarily the average of the two totals given, because these latter are only the aver-

ages of the prices of articles which are not the same in number under both sub-heads. The lowest and highest figures obtained for various years are given in order to show how considerable are the variations of prices from year to year. Thus, the grand total shows that prices stood at 111 in 1873 and had shrunk in 1879 to 83, to recover again in 1880 to 88. It is admitted, even by the advocates of the quantitative theory, that it is somewhat difficult to account for these variations as the result of changes in the quantity of gold. They endeavor to reach the desired result, however, by treating these wide fluctuations from year to year as temporary and seeking to ascertain the true trend of fluctuations over a series of years in much the method indicated by the passage from Jevons already quoted.

It is doubtful, however, if such sources of error can be eliminated with sufficient precision to leave a residuum definite enough to justify any mathematical conclusions on the subject of the effect of changes in the quantity of gold on prices of goods. One of the most insidious sources of error is the wide variations of high and low prices which are covered up by the system of averages. If wheat stands at $1.60 per bushel in January and at eighty cents in July, the average for the year (assuming that these are the only quotations available) is $1.20; but the inclusion of an index number of 120 in a table of prices entirely fails to account for the change between January and July by corresponding changes in the quantity of gold. It is admitted by Jevons in the passage above quoted, that "the dearth of cotton" was a serious factor prior to 1862, and in his tables of average prices he deliberately rejects the actual prices of cotton, which in 1862 stood at 349 for upland, in comparison with his standard of 100, and substitutes for both 1861 and 1862 the average price of 1860, with the declared purpose of eliminating "temporary fluctuations." In the case of hemp and flax also, the real

prices were omitted from the computations, and different ones used, for 1853, 1854, and 1855, because of the unusual variations caused by the Russian war.

Whatever the justification for these rectifications, it indicates one of the elements of danger in attempting to measure by prices the fluctuations in the stock of gold. It is not obvious why the ebb and flow of gold should be rejected as the controlling influence in fixing the actual prices of wheat in January and July and should be accepted as fixing the intangible concept of the "average price" for the year. The rejection of the influence of the gold stock in fixing actual prices involves the admission of a fact dangerous to the entire theory of index numbers as indicating the effect of changes in the gold stock on goods — that the fluctuations in actual prices which are caused by influences directly affecting goods are much greater than those caused by changes in the stock of gold.

Another insidious danger of the system of averages is the averaging of statistics of prices without reference to the volume of transactions at these prices. If, for instance, wheat sells in January at $1.00 per bushel, and in October at 60 cents, the average of the two quotations appears to be 80 cents. If, however, ten times as much wheat is sold at 60 cents as at $1.00, then the true average, or what is called the "weighted average," is 63.6 cents, which varies more than twenty per cent. from the simple arithmetical average.[1] Still another source of error is giving equal weight to different articles, one of which may be of much less importance in the budget of family or industrial consumption than another. If, as Laughlin points out, wheat sells at 70 cents a bushel and indigo at $1.00 a pound, the unweighted average is 85 cents, but if 100,000,000 bushels of wheat and 100,000

[1] As Padan points out, "It would not be a singular phenomenon if the low price should attract an unusual sale."—*Journal of Political Economy* (March, 1900), VIII., p. 183.

pounds of indigo are sold, the weighted average becomes 70.92 cents.[1]

It is obvious from these illustrations how misleading may be the averaging of a variety of quotations of prices relating to no common unit of weight, density, or size. It may easily happen that the average will remain the same, though prices of some commodities greatly fall and prices of others greatly rise.[2] These considerations lead to others, which are entirely apart from the merely mathematical questions involved in the methods of obtaining and comparing index numbers. Even if the results obtained by Jevons and other inquirers are admitted to be indisputably accurate as reflecting movements of prices in gold, the question remains whether the changes in prices revealed are due to influences affecting gold or to influences affecting goods.[3] Among the considerations

[1] *Principles of Money*, p. 158. Still another source of danger is the fact cited by Kinley that "Consumption changes its character. With the exception of a few articles included among the necessaries of life, there is almost nothing the demand for which may not change very much between two dates of consumption." —*Money*, p. 236.

[2] Interesting illustration of this is drawn by Schoenhof from the index numbers of the London *Economist*. The years 1879, 1884, and 1888 afforded total index numbers very nearly the same—respectively 2202, 2221, and 2230; yet among particular articles coffee varied from 106 to 166; tea from 64 to 111; tobacco from 156 to 244; wheat from 58 to 75; cotton from 73 to 92; wool from 98 to 111; and tin from 77 to 173. These variations were necessarily in different directions in the same year, and the fact that they give nearly the same average shows how little averages have to do with actual prices.—*Money and Prices*, p. 10.

[3] Jevons himself was much more guarded in his interpretation of his investigations than some of his later followers. He said: "All that I can pretend to *prove* in this inquiry is that, subject to the vagueness just referred to, the prices of commodities have risen, or that the rise of prices of those which have risen preponderates over the fall of those which have fallen. This *is and constitutes* the alteration of value of gold asserted to exist. It is quite

which counsel caution in accepting index numbers and averages as proving anything definite in regard to gold, the following are a few:

I. The fall in the labor-cost of producing commodities through the increased efficiency of machinery.

II. The fall in the market price of products by reason of the reduced cost of transportation.

III. The increase in the efficiency of labor shown by the increase of wages measured in gold.

IV. The increase in the volume of goods exchanged between distant places as the result of the increase in the product of labor and the increase in the facility of the distribution of this product.

V. The economies in the use of gold caused by more prompt communication and the use of foreign credits within shorter time.

The first two of these propositions have been among the dominant features of modern industrial life. According to the United States Bureau of Labor, as long ago as 1886, the gain in the power of production in some of the leading industries of the United States "during the past fifteen or twenty years," measured by the displacement of the muscular labor formerly employed to produce a given amount of produce, has been as follows: In the manufacture of agricultural implements, from 50 to 70 per cent.; in the manufacture of carriages, 65 per cent.; in the manufacture of machines and machinery, 40 per cent.; in the silk manufacture, 50 per cent. In 1840 an operative in a Rhode Island cotton-mill, working thirteen to fourteen hours a day, turned out 9600 yards of standard sheeting in a year. In 1871 the product per operative had advanced to 26,531 yards, representing 3382 hours' work; and in 1884, to 32,391 yards, representing 2695 hours' work — an increase within thirteen years of 22 per cent. in product and a decrease of 20 per cent. in

another question how this fall of value is caused."—*Investigations in Currency and Finance*, p. 21.

hours of labor.[1] In the manufacture of boots and shoes the following striking facts are presented:[2]

"In one large and long-established manufactory in one of the Eastern States the proprietors testify that it would require five hundred persons working by hand-processes to make as many women's boots and shoes as one hundred persons now make with the aid of machinery, a displacement of eighty per cent. In another class of the same industry the number of men required to produce a given quantity of boots and shoes has been reduced one-half. In another locality, and on another quality of boots, being entirely for women's wear, where formerly a first-class workman could turn out six pairs in one week, he will now turn out eighteen pairs."

These cases are typical of many others. In the time of Adam Smith it was considered a wonderful achievement for ten men to make 48,000 pins in a day; in 1888, three men could make 7,500,000 pins of a better and uniform quality in the same time.[3] It is obvious that these changes in the labor-cost of producing certain articles have had two effects: they have changed the ratio which prices of these articles would bear to prices of articles less affected by improvements in methods of production, the exchange value of the latter in gold remaining the same; and they have changed the ratio which prices, if measured in labor-cost, would bear to the labor-cost of producing gold. If commodities could be roughly separated into two classes only (instead of the infinite variety of classes arising from constant changes in methods of production affecting each by itself), the class whose labor-cost had been reduced by improved methods of production, and the class where no such reduction had been made, it would not be possible for gold to conform in exchange value to the variations of both. It must either have

[1] Wells, p. 28.

[2] First Annual Report of the Commissioner of Labor—"Industrial Depressions," p. 81.

[3] Wells, p. 60.

tended to increase in exchange value (or "appreciated") in relation to the goods whose labor-cost had been reduced, while tending to remain constant in relation to those whose labor-cost remained constant, or it must have tended to remain constant in exchange value in relation to the goods whose labor-cost had been reduced, while tending to fall (or "depreciate") in relation to those goods whose labor-cost remained constant.

Even if the cost of producing given classes of goods had remained constant, the reduction in railway, lake, and ocean freights would have caused a marked fall in the price of these goods in central markets, assuming their relationship to gold to have remained otherwise the same. A table printed by H. T. Newcomb shows that while the export price of wheat per bushel declined from 92 cents in 1867 to 75 cents in 1897, more than the entire decline was covered by the fall in railway charges from Chicago to New York, which was from 32.38 cents per bushel in 1867 to 12.50 cents per bushel in 1897. In 1867 the carriers were given the equivalent of one bushel out of every 2.84 bushels which they moved from Chicago to the Atlantic seaboard, as compensation for their services, but in 1897 they took but one bushel out of every six transported.[1]

Even more striking is the decline in lake and canal charges. In 1880 the rate on wheat from Chicago to New York per bushel was 13.13 cents; in 1897 it had fallen to 5.22 cents; and in 1904 there was a further drop to 4.73 cents.[2] The number of bushels carried for the price of one bushel rose from 5.77 in 1867 to 17.24 bushels in 1897. A like illustration is afforded in the reduction in the price of coal laid down at the door of the consumer. With prices at Philadelphia in 1869 at $3.92 per ton, the average freight rate charged by the Lehigh Valley Railway was 1.746 cents per ton per mile; in 1897, with coal

[1] *Railway Economics*, p. 35.

[2] *Year Book of the Department of Agriculture*, 1904, p. 719.

at Philadelphia at $3.50 per ton, the cost of carriage had fallen to .712 cents, or by more than fifty per cent. The distance for which a ton of coal could be carried for the amount of its price, thereby doubling its cost, was 200 miles in 1869; it was 439 miles in 1897.[1]

These changes in freight rates have been rendered possible—not by greater or less quantities of gold taken from the mines, but by revolutions in railway construction. Increased weight and power of locomotives has increased the amount of freight which can be carried in a train under the management of a single crew. The average weight of a locomotive at the close of the Civil War was about 90,000 pounds. The great increase in size came after 1890. The computed average was about 135,000 pounds in 1893, or an increase of about fifty per cent. in twenty-eight years. Within five years, in 1898, there was an increase of 95,000 pounds, to an average of 230,000 pounds. Locomotives were constructed in 1900 weighing 365,000 pounds and twice as powerful as the best of fifteen years earlier. With such increase of power has gone increase in capacity of cars. In the sixties the normal capacity of a freight-car was about 15,000 pounds. This was increased in 1875 to 40,000 pounds; in 1885 to 60,000 pounds; in 1895 to 70,000 pounds; and in 1900 cars of 80,000 to 100,000 pounds ceased to be rare.[2]

The fall in rates of transportation has not only acted in depressing the average cost in labor of laying down in a given market a product whose labor-cost may be assumed to have been rigid, but it has influenced the distribution of products and the character of freight shipments. As the matter is illustrated by Powers:[3]

[1] Changes in the rates of charge for railway and other transportation services.—United States Department of Agriculture, 1898, pp. 79–80.

[2] *Vide* Final Report of the Industrial Commission, XIX., p. 292.

[3] *Modern Variations in the Purchasing Power of Gold*, p. 369.

"It costs but little more to ship a ton of wheat from Iowa to New York than to ship a ton of hay. The ton of hay will not, with its lower average price, bear the cost of transportation 1000 miles, as will the dear-priced wheat. It has not been shipped a long distance save in exceptional years. Hay prices in the East have, therefore, not been affected by changing railway-rates as have those of the dear-priced grains. As the result, hay prices have been increased in nearly all the States of our Union.

". . . In 1867–1870 the price of wheat in New York was $48.09 per ton, and that of hay, $12.98. In 1891 to 1894 the value of wheat was $27.85, and that of hay was $10.76. These values in New York stand in contrast with those of Iowa. In that State the prices for the earlier and later periods were for wheat $24.23 and $20.70. The corresponding values for hay were $5.68 and $6.51."

Already evidence has been given that the cost of modern products in labor has been greatly reduced by the introduction of machinery and the application of power. If the benefits resulting from this increased efficiency of labor were equally distributed, then the wages of labor, the status of gold remaining constant, would be correspondingly increased. If, on the other hand, the decline in the prices of commodities were the result of a deficiency of gold, and not of change in labor-cost, then wages would naturally yield gradually to the scarcity of the means of payment, and, after a certain amount of friction, would fall in something like the same ratio as commodities. If this fact could be demonstrated, the argument that scarcity of gold is indicated by index numbers would acquire at least a certain superficial force. But the exact contrary is the fact. Statistics of wages show that wages expressed in gold have risen in a remarkable degree, while prices have been falling. This is indicated by the Falkner report. The result reduced all wages to

percentages based upon those of 1860 as the unit. The figures showed that when wages were reduced to a gold basis, they averaged in 1840 87.7 per cent. of the wages of 1860. Then came the period of greenback issues during the Civil War, when wages in paper were high, but represented only 66.2 per cent. in gold of the rates of 1860. The upward movement was rapid as the premium on gold fell, and the gold wages of 1872, when prices were also high, were 152.2 per cent. of those of 1860. There was a fall during the years of depression that carried wages as low as 135.2 in 1876, but even at this time, their purchasing-power was probably quite as large as in 1872, because of the fall in prices of nearly all manufactured articles and of other necessaries of life.

After the resumption of specie payments began a new upward movement in gold wages, which carried them in 1880 to 141.5 per cent. of the rates of 1860, to 158.9 per cent. for 1890, and to 103.43 per cent. of the wages of 1891 for the year 1900. This upward movement of wages went on while the average working-hours, which were 11.4 in 1840, fell to eleven hours in 1860, to ten and a half hours in 1870, to 10.3 in 1880, and to ten hours in 1889. This was the average of all leading mechanical industries, including some in which long hours still prevail, but others in which the time has fallen considerably below ten hours a day. Comparing the hours of labor with the rate of wages, it appears that the amount of money now paid is, substantially, twice that paid half a century ago for a day which is at least thirteen per cent. shorter than that under the smaller wages.

From the increased efficiency of labor has resulted, in spite of shorter hours, a larger quantity of products to be distributed. This in itself, according to the quantity theory of money, should cause a fall in gold prices because of the increased quantity of goods to be measured in gold. A serious modifying factor, however, in any

such connection, would be the increased efficiency of the means of transferring gold and credit. The extent to which economies in the use of gold have by modern methods been introduced into banking by deposit accounts, the check system, and clearings must be reserved for consideration under the head of banking. It is sufficient to observe that these changes have reduced the demand for gold to a very small percentage of the total demand for currency and a still smaller percentage of the total demand for means of payment. Gold has come to be required chiefly for cash payments of small amount in retail trade and for bank reserves.

The influence of credit in introducing variations into the relation of gold to goods has been discussed in the previous chapter. It may be noted here, however, as a consideration modifying the old relations between gold and goods, that the efficiency of a given sum of gold has been greatly increased in international trade as well as in domestic trade. This increase in efficiency in international trade is the result of the use of the cable, the telegraph, and the telephone. A credit granted to a New York house by one in Paris, for instance, may be employed several times if covered by transactions in the opposite direction, during the period in which it might have been employed only once a generation or two ago. Even where the mail is employed, or direct shipments of gold are made, the increased speed of ocean steamers materially reduces the charge for interest on gold in process of shipment and shortens the time which transfers it from the command of one market to that of another. The effect of fast ocean freights and international railways upon the transportation of goods has also been felt in its influence upon the distribution of goods and the organization of markets. Not only can a given product be moved more quickly to the market for which it is intended, but it is no longer necessary to hold large stocks of goods in central markets to the extent that was required before transportation be-

came prompt and cheap. A case in point is that related by Wells:[1]

"As a rule, also, stocks of Indian produce are now kept, not only in the countries, but at the very localities of their production, and are there drawn upon as they are wanted for immediate consumption, with a greatly reduced employment of the former numerous and expensive intermediate agencies. Thus, a Calcutta merchant or commission agent at any of the world's great centres of commerce contracts through a clerk and the telegraph with a manufacturer in any country—it may be half round the globe removed—to sell him jute, cotton, hides, spices, cutch, linseed, or other like Indian produce. An inevitable steamer is sure to be in an Eastern port, ready to sail upon short notice; the merchandise wanted is bought by telegraph, hurried on board the ship, and the agent draws for the price agreed upon, through some bank with the shipping documents."

It is obvious that arrangements like these so promote the transfer of goods that even if gold were held to pay for a given consignment, the time in which it would be thus held would be greatly diminished. As a matter of fact, improvements in methods of credit almost obviate the necessity for employing gold. Such transactions may be large or they may be small from month to month, without changing the quantity of gold held in a London or Calcutta bank as a protection against outstanding credits. If the amount of such credits is large, they may reach the entire amount considered prudent by the management of the bank in relation to its stock of gold; but on the other hand, if they fall off, through causes having no relation to the gold stock, the reserve of the bank in London or Calcutta is likely to remain almost unchanged. Only by the

[1] *Recent Economic Changes*, p. 31. How the modern organization of industry and transportation has equalized the prices of grain and obviated the necessity for hoarding is set forth by Jannet, *Le Capital au XIX^e Siècle*, p. 210.

greater marginal utility of this gold at some point where business activity is greater, may a demand arise for its transfer to another centre where it can earn an income by its employment as a reserve.

The many facts which have been cited are not in themselves a demonstration that the value of gold does not move up and down in proportion to the quantity of goods exchanged in the market-places. They tend, however, to establish the proposition that averages of prices obtained by index numbers from a mass of commodities constantly shifting in quantity in proportion to one another, in quality, and in relations of supply and demand in one place and another, cannot afford a mathematical index of the value of gold arising from changes in the quantity of gold. As Fiamingo points out:[1]

"It is apparent that the variation in the purchasing-power of money is a consequence, an effect, of obscure and complex causes. The total index number gives us, then, the effect measured in money, of all the technical, industrial processes, and of all other causes which have determined the changes in price of the enumerated commodities. If the index number shows an increase in the purchasing-power of money, it is an effect, a consequence of these factors, and the decline in the prices of commodities is due to those varied and complex causes."

Changes in prices of commodities constantly take place from causes related to commodities, to changes in fashions and to political and economic events, rather than to causes related to the money supply. Only by a process of inversion can it be properly said that a change in commodity prices under such conditions is caused by changes in the value of money. The ratios of price may have changed, but from causes related to commodities rather than those related to money. During the Crimean War the price of wool went up, and during the blockade of the

[1] *Journal of Political Economy* (December, 1898), VII., p. 75.

Southern ports of the United States in the Civil War cotton increased to two or three times its usual value. Fiamingo correctly declares that "money in these cases measures the economic effect which the Crimean or the United States war has on wool or on cotton, but this economic phenomenon is absolutely independent of money and its measure." Sir James Steuart showed early appreciation of the complicated phases of the problem of prices. He regarded the forces acting upon prices as of three sorts:[1]

"Those exerted by demand, supply, and the interaction between the two, or competition. These forces he classified as '(1) the abundance of the things to be valued; (2) the demand which mankind make for them; (3) the competition of the demanders, and (4) the extent of the faculties of the demanders.' From these general principles, he concluded that the specie of any country might, therefore, be 'augmented or diminished in ever so great a proportion, commodities will still rise and fall according to the principles of demand and competition and these will constantly depend upon the inclination of those who have property or any kind of equivalent whatsoever to give, but never upon the quantity of coin they are possessed of.'"

The most serious difference between the advocates of the quantity theory and those who oppose it is not so much, perhaps, over facts as over the question of their causation. Few deny that where there is a great quantity of gold prices are usually higher than they would be for the same quantity of goods with a much smaller quantity of gold. But it is possible to argue that the rise of prices is due to expansion of credit and that this rise of prices is the influence which attracts the amount of gold required

[1] *Inquiry into the Principles of Political Economy*, I., p. 400. This summing up of his position is from the article of Willis, "History and Present Application of the Quantity Theory," in *Journal of Political Economy* (September, 1896), IV., p. 423.

for carrying on transactions. This makes gold follow the variations of prices instead of causing them. The manner in which the change is interpreted by the advocates of the quantity theory in its crude form is diametrically opposite —that the quantity of gold determines the movement of prices, not that prices determine the movement of gold. There is probably some truth in both views under differing circumstances. As between two given countries, the one where credit is expanding and business is active will tend to draw to itself from the existing stock such an amount of gold as is necessary for carrying on its transactions. In the gold-using world as a whole, however, change in the absolute quantity of gold in existence will enter into the many influences acting upon average prices throughout the world (if such a world-average is conceivable) with a tendency to raise those prices which are most sensitive if there is a marked increase of gold and to depress them if there is a marked decrease of gold. The problem is so complex that it is doubtful if any amount of research would permit reducing it to a mathematical basis. All that can be asserted—and even that rather as a deduction from general tendencies than as a demonstrated fact—is the rule of the quantitative theory stated by Dubois:[1]

"The quantitative theory of prices should be set forth in this fashion: In assuming to be unchanged the rapidity of the circulation of money, the development of credit and of means of payment without the intervention of money, as well as the mass of exchanges thereby affected, a variation in the quantity of money of some importance (*suffisamment forte*) in relation to the stock previously existing will tend to produce an inverse variation of the purchasing-power of money."

It is on the side of demand for gold that the greatest variations occur in its relation to the value of goods. The demand varies greatly with changes in conditions of

[1] *Précis de l'Histoire des Doctrines Économiques*, p. 190.

credit. In a period of expanding credit, the demand is not primarily a demand for gold but for capital. Gold operates simply as the safety-valve, which is designed to insure not only a sufficient supply of the medium of exchange in daily transactions, but such a relation between prices of different commodities as shall at a certain point check overproduction. It is when such overproduction reaches the point that prices of goods fall seriously that gold serves a useful purpose as a standard. It is in such cases more a standard of relative values than of absolute values, because those articles which have been overproduced fall in price, not simply in relation to gold, but in relation to articles for which there is a greater demand. Gold is the one article which is always in demand in all gold-standard countries and which, therefore, acquires a peculiar value when other articles become less exchangeable. The manufacturer who is selling steel rails or cotton goods as fast as he can produce them finds them as good as money. It is only when he finds that he cannot sell them at his usual profit that they cease to be valuable in his hands and he then turns to money as the one article whose value is unquestioned and which is always exchangeable for what he needs. Hence come the great fluctuations in the demand for money, which are much more important in affecting its exchange value than the slight annual changes in the new supply.

From these considerations emerges the conclusion that such mathematical relationship as exists between the quantity of gold and prices, or between the quantity of currency and prices, is in actual transactions so obscured by other factors that it cannot be ascertained correctly, or revealed conclusively, by tables of prices of commodities. When additions to the stock of metallic money are large and permanent they act finally, in some degree, upon prices; but this action cannot be exactly measured by any rule of mathematics, and is often less potent than many other influences which affect commodities. It re-

quires, says Leroy-Beaulieu, "a very long time for the increase of the money supply to traverse all the channels of circulation and produce a general and uniform elevation of the level of prices."[1] It has already been shown that this elevation of prices can never become uniform, because the first effects of expanding credit resulting from an increase in bank reserves are felt upon those commodities whose prices are most sensitive, and thereby cause a readjustment of the relations of demand and supply between other commodities, of which gold is only one. The true law governing the demand for metallic money is well stated by Kinley:[2]

"At any moment the value of the standard money is fixed by the interplay of competition between buyers and sellers of gold; but it is a competition to buy and sell, not gold in general, but a definite amount, a definite supply. The demand is not for an amount sufficient to settle all exchanges, but sufficient only for the settlement of the balance of exchanges. Now the same balance may represent very different total volumes of exchanges, at different times, on the same price level. That is to say, the demand for money for immediate payment may remain the same for very different volumes of business, or it may be larger, or smaller, for the same volume of business at different times."

[1] *Traité d'Economie Politique*, III, p. 151. [2] *Money*, p. 146.

V

THE PRINCIPLES OF FOREIGN EXCHANGE

A means of discharging debts due abroad—How exchange prevents needless counter-shipments of gold—Value of bills of exchange subject to rule of supply and demand—Usually within the limits of the cost of shipping gold—Meaning of "par of exchange"—Difference between commercial bills and bankers' bills—Why the larger proportion of bills is drawn on London—Arbitrage and indirect exchange.

FOREIGN exchange is the system by which traders of different nations discharge their debts to one another. In the more technical sense the term is limited to settlements made by means of bills of exchange.

A bill of exchange is an order by one person to another in a different place to pay money to a third. The term is sometimes used for similar transactions between different places in the same country. Such an operation in the United States is called domestic exchange and in Great Britain inland exchange. In the United States most references to exchange, without any qualifying words, refer to foreign exchange, which involves transactions between persons in different countries.[1] The definition given by Goschen, the author of the first classic work on the foreign exchanges, is this:[2]

[1] The term "bills of exchange" is still widely used in Great Britain for inland bills. Thus Rae has a chapter on "Bills of Exchange" almost wholly devoted to this subject (*The Country Banker*, p. 238); and Easton says, "Bills are drawn on London from every quarter of the Kingdom" (*Banks and Banking*, p. 167).

[2] *The Theory of the Foreign Exchanges*, p. 2.

"That which forms the subject of exchange is a debt owing by a foreigner and payable in his own country, which is transferred by the creditor or claimant for a certain sum of money to a third person, who desired to receive money in that foreign country, probably in order to assign it over to a fourth person in the same place, to whom he in his turn may be indebted."

Stripped of technicalities, the use of bills of exchange serves a similar purpose to the use of checks in obviating the necessity for transferring money. It is a method of charging off obligations of persons in different nations to one another, just as banking credits are means of clearing such obligations at home, in such a manner as to reduce to a minimum the transfer of actual money. If the entire volume of exports from the United States, amounting in the fiscal year 1905 to $1,518,000,000, had to be paid for in money it would be necessary to send that amount of money across the ocean, while if the imports into the United States, amounting to $1,117,000,000 were paid for in the same way, a large counter-current of money would be flowing in the opposite direction. These shipments of money, moreover, would have to be made in gold coin rather than in any form of government paper or bank-notes, because gold is the only money of full intrinsic value and acceptable in commercial countries.

It is obvious that these counter-shipments of gold would be wasteful and unnecessary. They would absorb a great quantity of money upon which interest would be lost, and they would be subject to the costs and exposed to the usual risks of transit by sea. As between one country and another, if the transactions could be brought to a common market, it would only be necessary at most that the balance should be settled in gold. But the persons who import goods from Europe are not usually the same as those who export goods to Europe, and those to whom goods are exported are not the same as those from whom goods are bought. The bill of exchange, therefore, comes

into use as a means of transferring titles to money without the physical delivery of it. What is required ultimately by the creditor is payment in the money of his own country. The title to such money is what the debtor buys through the processes of foreign exchange. In the words of Georges-Lévy, exchange is "the operation which transforms the money of one country into that of another country."[1]

The simplest form of a foreign exchange transaction would be the case where a person who had become entitled to money by selling goods to a foreign purchaser should draw an order upon that purchaser for the amount due for the goods. If this order is bought by a person who owes money abroad for imported goods, the latter is able to remit the order to the person from whom he has bought. This person has then only to present the order in his own country, and usually in his own city, to the person upon whom it is drawn—the buyer of goods from the exporting country. Thus the counter-obligations between the two countries are settled by charging one off against the other and transferring such claims to the persons ultimately entitled to money.

The operation of bringing together buyer and seller of bills of exchange is naturally performed through banking houses. Otherwise the person who had a bill to sell would not know where to readily find a buyer, and a person who desired to buy a bill to settle an obligation abroad would not know where he could find it. Dealing in bills of exchange is, therefore, a regular profession, sometimes pursued by classes engaged in few other forms of business and sometimes as an incident to other branches of banking.

Bills of exchange, being a substitute for money in the settlement of international balances, are subject to the condition governing other commodities — the rule of supply and demand. If such bills are plentiful in rela-

[1] *Mélanges Financiers*, p. 102.

tion to the demand for them their price falls; if they are scarce, their price rises. An excess of bills of exchange arises fundamentally from an excess of exports from the country where they are drawn; a scarcity arises from an excess of imports. Many other elements, as we shall see, enter into the problem of the relative demand for bills, but for the sake of simplicity in illustrating the theory, it may be assumed that the demand for bills depends upon the balance of foreign trade. In the figures given above for the trade of the United States in 1905, there would be a large offering in New York of bills on London and their price in American money would fall, while in London there would be a relative scarcity of bills on New York and their price would rise.

The terms "rise" and "fall" are here used on the assumption that drafts expressed in foreign money are quoted in terms of the money of the country where they are sold. This is the case with drafts upon London sold in New York. A rise in exchange implies that it requires an increased amount of American money to buy a pound sterling; a fall in exchange implies that it requires a less amount. In London, however, this method of quoting the exchanges is not usually followed, but exchange with foreign countries is expressed in the currency of those countries. This reverses the significance of terms and makes a rising exchange favorable to London and a low exchange unfavorable; because a high exchange means that more foreign currency can be bought with an English pound sterling. It is necessary therefore, in interpreting references to the state of the exchanges, to know the point of view from which they are made.

If bills of exchange were the only method of settling international balances, those who had them to sell might fix any price determined by the demand on the one hand and the supply on the other. There are, however, natural limits to the prices which can thus be obtained. These limits are established by the cost of shipping gold. If

brokers should arbitrarily charge for bills of exchange a price not warranted by the conditions of the market, the option would lie with the person having a debt to settle abroad to send gold, which would be accepted by his creditor as readily as a bill. It would be necessary to obtain the gold, to have it properly boxed, to secure insurance against its loss, to pay the other proper costs of shipment, and to consider the loss of interest while the money was in transit. As these charges are nearly uniform between given points and can be easily ascertained, they form a limit upon the price of bills of exchange beyond which dealers in them cannot go in fixing their charges. An excessive supply of bills may depress the price obtained for them to such a point that a man having a debt due from abroad will prefer to pay the cost of having gold shipped to him. A deficient supply of bills, after raising their price to the same amount as the cost of shipping gold, may compel the actual shipment of gold to meet the obligation. Between two gold-standard countries, these limits are pretty nearly fixed by the cost of gold shipments.

Par of exchange expresses the relations between the mint weights of the standard coin of different countries which employ the same metal for their standard money. Theoretically, par of exchange would arise from an exact balance of payments, but practically such an exact balance seldom exists and could not be accurately ascertained if it did exist. Par of exchange simply constitutes the pivot around which the exchange fluctuates upward or downward according to the relations of demand and supply for bills.[1] Par of exchange between London and New

[1] A simple case of theoretical par exists between England and Australia, because the unit of value of each is the gold sovereign of the same weight and fineness; but this is very far from implying that £100 in one country will purchase a bill for £100 on the other, even when merchandise shipments are evenly balanced, for the loss of interest during the transmission of the bill has to be considered.—*Vide* Clare, p. 17.

York is $4.866. This means that $4.866 in United States gold coin contains the same amount of gold bullion as a pound sterling in British gold coin. The par of exchange between Paris and London is 25.22 francs to the pound sterling, and the par of the German exchange on London is 20.43 marks to the pound sterling. These parities depend on the legal weight of new coins and are modified in practice if a country permits its gold coinage to deteriorate by wear.

There can be no fixed par of exchange between countries having different metals for their currency standards. There is a definite par between the legal mint weights of the standard coins in gold-standard countries, but there can be no such fixed par between gold and silver countries, gold and paper countries, or silver and paper countries Their exchange necessarily fluctuates according to the relations of gold to silver or to paper currency, without any fixed limits. Thus the fluctuations of exchange between London and New York since both countries have been upon the gold standard could not be materially greater than from $4.835 in American currency for the pound sterling to $4.895, a difference of less than one and a quarter per cent., representing the cost of shipping gold both ways. Between New York and Mexico, however, while the latter country was on a silver basis, in 1903, the fluctuations were from 2.65 pesos to 2.18 pesos for one dollar, the difference of more than twenty per cent. between the two extremes representing the changes in the gold value of silver in addition to the mere cost of shipping money between the two cities. There being no fixed price in gold for silver bullion, there is obviously no point in the relationship between the moneys of the two countries which can be considered as an even theoretical par of exchange.

While the par of exchange is a theoretical conception, which cannot be demonstrated to depend upon exact equality of payments, there is no doubt that, other in-

fluences being the same, such a par is most likely to be attained when the supply of bills offered in one country upon another about equals the supply offered on the other side. When there is an excess of payments to be made by one country over the amounts due to that country, the demand for bills is likely to exceed the supply and to raise the rate of exchange. When the bills have been absorbed, it then becomes necessary to export gold. How this condition operates is thus set forth by Straker:[1]

"Let us suppose that as a result of the aggregate dealings between France and England, France at one period owes us more than we owe her. Now it will be apparent that in the settlement of the transactions comprised in the aggregate, the merchants in France will find a difficulty in procuring sufficient drafts to settle all their indebtedness, and consequently there will be a likelihood of some of the merchants there having to send gold and bear the cost of remittance. Hence there will be competition among them to obtain what bills are offering—demand will exceed supply—and rather than be forced to send gold, buyers of drafts on London will be willing to pay more for them than the face value represented; that is, they will be willing to pay more than mint par."

The point at which the cost of shipping gold is no more than the price of bills of exchange is called the "gold point." The same term is applicable to the movement in the other direction, when the price of bills falls so low that it is more profitable to accept gold. One is the export gold point; the other is the import gold point, but in practice the relation of the gold point to the price of bills, whether they are high or low, carries its significance so plainly to the expert that in ordinary discussion he does not feel the necessity of using the qualifying phrase. When the cost of bills on London and New York, for instance, rises gradually from par at $4.866 towards

[1] *The Money Market*, p. 130.

$4.895, which is about the gold export point, the exchange dealer and his customers understand that "the gold point" means that gold is likely to be exported from New York when this point is actually reached. On the other hand, when the price of bills falls from par towards $4.835, reference to the impending "gold point" means that when it is reached gold is likely to be imported.

A large demand for bills of exchange, therefore, arises from heavy obligations to be settled abroad and a small supply of bills arises from limited obligations due abroad.[1] The balance theoretically has to be settled by the transfer of gold. The normal bill of exchange is based upon business transactions. These transactions inevitably include many items besides the export and import of commodities. They include payments for freight, insurance, commissions, and other charges connected with the shipment of goods. They included also remittances of interest due by borrowers in one country upon the securities which they have sold to lenders in another country.[2]

Assuming, for the sake of simplicity, that one country, as Great Britain, had a claim against the United States for $80,000,000 for goods exported, and that the United States had a claim against Great Britain of $100,000,000 for goods exported, equality in exchange transactions might be reached by the fact that American merchants owed to British ship-owners $10,000,000 for freights and

[1] Sykes calls attention to the fact that "It is the debts which are in the process of being paid which affect the exchanges, but the total indebtedness of either country may not affect the exchanges in any way. Most nations are indebted to England owing to the investment of English capital abroad, and though, as we shall see, the payment of the interest on such investments has an important bearing on the rate of exchange, yet the capital sums do not affect the rates except at the time they are borrowed or repaid."—*Banking and Currency*, p. 195.

[2] Nicholson classifies a freight payment as "an invisible export" and an investment as "an import of securities from the foreigner," to be paid for in commodities.—*Bankers' Money*, p. 26.

similar charges and owed to British capitalists $10,000,000 for interest on their investments in American securities. Under such a condition of the exchanges a quantity of commercial bills on London would be thrown upon the New York market which would exactly meet the demand for bills for all purposes.[1] Under such circumstances the price of exchange should be near par in each country.

It by no means follows, however, that absence of equality of payments causes immediate movements of gold. The bills originating in movements of merchandise are known as commercial bills. They are, in the case assumed, bills drawn against merchandise actually exported from New York to Great Britain. There is another class of bills of great importance, however, which enter into the movement of the exchanges to still further economize the transfer of gold and to diminish the successive shocks which would come to the money market if the only factors were commercial bills and gold. This additional factor is bankers' bills of exchange. These are drawn in the same manner as commercial bills. They are drawn in some cases against actual shipments of gold in order to give to the trader command over the gold which has been transferred between the banks. This operation may be thus described:[2]

"When gold moves between countries it is as an article of merchandise, and bankers' bills are drawn against the movement in the same manner as commercial bills would be drawn against a movement of commodities, though the drafts against gold would be payable in the briefest possible interval of time to save interest charges

[1] "On the New York market freight charges figure chiefly on the demand side of London bills, since a large part of the ocean-carrying trade is in the hands of English ship-owners, who receive their pay in London bills. The great German transportation companies also have a large New York business which influences the demand for German bills." — Scott, p. 245.

[2] *Foreign Exchange*, "New York Financier," p. 19.

which, under the conditions calling for such an unusual movement, would be abnormally high."

Bankers' bills may be drawn also against credits extended to the bankers abroad. It is in this way that bankers help to avert the unnecessary pressure which would be felt upon the market if every temporary balance of payments had to be settled by the shipment of gold. A New York bank which deals in foreign exchange is usually able to obtain an open credit from a banking-house in London or any other point with which it does business. When there is a scarcity of commercial bills on the market, the New York bank is able to meet the demand by drawing bills against its credit abroad. This serves to make the supply of bills equal to the demand. Eventually the New York banker must pay in some manner for his draft upon his foreign credit. He counts upon doing this by himself buying bills of exchange when the supply is in excess of the demand. He thus contributes by the purchase of bills as well as by their sale to temper the fluctuations of the market and keep supply and demand at a level. Since bankers' bills are usually drawn only after the supply of commercial bills has been exhausted (or shows symptoms of exhaustion) and to avoid the cost of shipping gold, they command a slightly higher price than commercial bills.[1] The banker, by delaying the offer of bills for sale until there is a scarcity, is able to obtain a price approaching the gold export point; by delaying purchase of bills until there is a manifest excess, he is able to purchase at a point approaching the gold import point. If, at the time

[1] "That a bank-draft should cost more than a trade-bill is (quite apart from the better standing of the drawer) only natural, for the banker, besides having to remunerate his correspondent, either by paying a trifling commission, or by keeping a balance in London free of interest, must also add on a certain percentage for the trouble of drawing and advising the bill, and providing cover."—Clare, p. 29.

he sells his bill at a high price, he calculates correctly the time when he will be able to buy at a low price, he makes a profit in excess of the direct profit represented by the cost of shipping gold.

The employment of bankers' bills is only one of many factors which complicate the operation of the simple principle of settling balances by interchange of commercial bills. There is a great variety of transactions growing out of modern financial operations which require remittances one way or the other independent of the shipment of commodities. The payment of interest on securities is one of these factors and dealings in securities which have an international market constitute another factor. The rate of discount for money is also an important factor in determining the profit of the dealer in bills of exchange. A high rate in one centre as compared with a low rate in another will lead bankers to buy or sell or to change their charges according to the influence of the rates upon final profits. A New York banker who has an open credit in Europe will take advantage of high interest rates in New York to sell bills, other conditions being favorable, up to the limit of his credit. He will do this because the money received for the bills sold can be loaned in the market at the high rate of discount which prevails there. He will have to pay for the use of this money only the rate of the discount in the market on which the bills are drawn, plus perhaps a small commission, so that there will be a profit amounting to the difference in the rates. This profit will go to the banker who sells the bills or will be divided between him and the institution on which they are drawn, according to the nature of the contract between them.[1]

[1] An operation of this sort in which the risks and the chances of profit are equally assumed on both sides is called a "joint account," and sale of bills by a banker at his own risk and profit with a fixed commission paid for the privilege of drawing, is called a "free credit" or an "open account."

Down to a recent date the comparative excess of capital in Europe seeking investment over the amount of such capital in the United States has made the rate charged for the use of money lower as a rule in Europe than in America. This has made it more profitable for American bankers to sell exchange against their credits in Europe than for European bankers to sell on America. Occasionally, however, this process has been reversed. The low rates of exchange in New York in the autumn of 1903 tempted American bankers to buy bills on London and hold them for sale at later dates at higher prices. The character of such operations was thus set forth by a financial journal:[1]

"Investment purchases of long sterling are now a feature of the foreign exchange market for the first time in several years. The operation is the reverse of that by which sterling loans have been made so frequently during the past two years. It consists in the purchase of bankers' sixty and ninety day bills for the purpose of holding them until they run to sight. The difference between the present rate for bankers' long bills and the rate at which it is estimated that demand sterling can be sold when the bills mature, constitutes the profit on the investment."

This extract brings out the highly technical character of exchange operations and the factors which enter into them. "Long sterling" is the market contraction for bills drawn in pounds sterling for a long period. The antithesis of "long" bills is "sight" bills and the rates of exchange usually quoted are for "sight" and sixty and ninety day paper. It is obvious that a "long" bill may be sent at once to the market on which it is drawn to be sold there for collection at maturity or may be held in the market where it is drawn, as in the case above cited.

A variety of factors operate upon exchange in so many conflicting ways that only those who make a careful study

[1] *Wall Street Journal*, November 18, 1903.

of the subject are capable of making all the intricate calculations required in exchange operations and judging with reasonable certainty of the future course of the market. It is not possible here to follow these operations in detail. The elements which bring complication into the problem are the arithmetical differences between the units of foreign money, the allowances to be made for interest on the bills themselves, the fluctuations in discount rates at different points, the fluctuations in the value of currencies which are not upon the gold standard, and finally the movement of the complex forces of payments of all kinds to be made on one side or the other which determine the equation of supply and demand. There are several technical terms, however, which are so frequently met with in discussions of foreign exchange markets that their definitions may properly be given as they were presented nearly a century ago in Kelly's *Cambist:*"[1]

"The word *valuta* or *valeur* is applied on the Continent to the prices or rates at which different kinds of monies are reckoned in commercial transactions.

"The difference of one sort of money compared with another is mostly reckoned at so much per cent. When a better sort is given for a worse, the premium or percentage is called *Agio;* but when the difference or percentage is considered with regard to the inferior sort of money, it is called *Discount.* Thus, formerly, when 100 florins banco were given for 104 of currency, the agio on banco was four per cent., but when the same sum was given for ninety-five florins currency, then banco was said to be at a discount of five per cent."

It is by the skilful combination of these various factors for their own profit that the operations of dealers in exchange tend automatically to withdraw capital from the places where it is least needed and concentrate it in those

[1] *The Universal Cambist and Commercial Instructor*, I., p. xxxiv.

where it is most needed. Their guide is the theoretically simple one, that they will receive the highest price for money where it is in the greatest demand. The margins upon which such transactions are made have steadily grown narrower, and the employment of bills of exchange has greatly increased with the expansion of commercial operations in recent years. A solidarity has been established between different markets which did not exist a century ago or even a generation ago. It has become possible through the use of the telegraph and ocean cable to conduct operations in exchange, and especially in indirect exchange, upon very small margins of profit. Such transactions are often made by bankers without direct reference to the movement of commercial bills, simply because they find, by careful comparison of the rates of discount in different markets and the price of bills, that a small profit may be made by promptly buying or selling. Such transactions are called arbitrage of exchange.

Arbitrage is defined by Courcelle-Seneuil as a traffic in bills "similar to that in merchandise, which consists in buying commercial paper which is depreciated in certain places in order to sell it in other places where it is in demand."[1] As the operation is explained by Pierson:[2]

"Just as the merchant makes his profit out of differences in the prices of goods, so the foreign banker makes his out of differences in the prices of bills, and the operations both of the merchant and the banker have the beneficial effect of reducing these differences to a minimum."

Under normal conditions exchange cannot fall below the cost of importing gold nor rise above the cost of exporting it. Special circumstances affecting the money market or the state of credit have occasionally, however, caused rates which for a short time went beyond these limits. When there is a stringent money market, even a favorable rate for bills of exchange may not tempt the

[1] *Traité des Opérations de Banque*, p. 99.
[2] *Principles of Economics*, I., p. 519.

owners of money to invest in bills. One of these occasions was at the outbreak of the Civil War in the United States in 1861, when the political conditions produced such a desire for money on the part of dealers in bills that they were willing to sell the bills at a sacrifice rather than wait for their maturity and payment in England. The probability of war had led to the reduction of importations into the United States, and this had brought more bills into the market than there were buyers with obligations to settle abroad. The combined effect of the large net offerings of bills and the desire for money, was to depress the price of bills momentarily below the cost of importing gold.[1] The operation of an opposite influence was felt in the United States in October, 1839. Specie was shipped to England at a loss in preference to bills at par, owing to the apprehended difficulty of getting the bills discounted under the conditions of pressure then prevailing in the London money market.[2]

The development of the ocean cable has made possible a method of transferring money and conducting arbitrage operations which dispenses with the direct use of bills of exchange. This method is thus described by Bolles:[3]

"Within a few years the practice has arisen of transferring money by telegraph, or, as it is termed by the newspapers, 'cable transfer.' By this method a merchant who desires to ship wheat to London can complete the transaction in a few hours. He can ship the wheat, telegraph the fact to the consignee at London, obtain particulars concerning the conditions of the market, and, if he think best, have the wheat sold at once, 'to arrive,' and to remit the proceeds through a London banker. A bill does not appear at all in the transaction. The amount of business done in this manner has materially reduced the volume of bills in some places. In the Eastern trade with London, in which competition is exceedingly keen and the margin

[1] Bastable, *The Theory of International Trade*, p. 86.
[2] Raguet, p. 27. [3] *Practical Banking*, p. 251.

of profit consequently small, the telegraphic transfer-system has been in use for several years. The amount of cable transfers between this country and European countries is constantly increasing."

One of the most complicated of the operations of exchange is indirect exchange. It is an operation which may be availed of as a convenience in settling commercial transactions and as a source of profit in arbitrage operations in bankers' bills. Indirect exchange is the employment of bills drawn on a given point to settle obligations at another point. In this way are settled many of the balances between countries whose direct trade with one another would create large favorable or adverse balances. If, for example, the United States has sold more goods to British merchants than she has bought from them, but British merchants have sold more to South American merchants than they have bought from them, it is a natural thing that the British should turn over to the American merchants the authority to collect the debts due them in South America and to retain the proceeds. It is no uncommon thing, when the current of trade is in the other direction, so that money is due by British importers to the wool-growers of the Argentine Republic, for gold to be shipped from New York to Buenos Ayres to discharge the British obligation.

Such operations are carried on through brokers and bankers, who are governed by the conditions of the market in determining whether to ship gold or to buy or sell bills. They may be, and often are, carried on by bankers for the purpose of making a profit by arbitrage. In such cases the bankers study carefully the rates of exchange and the rates of interest for money at the several points which they propose to make the basis of their operations. If exchange in New York, for example, on Berlin is favorable to New York, so that a comparatively small amount in American currency will buy 1000 marks in Berlin, while exchange in Berlin on London is also

favorable, so that a comparatively small amount in marks will buy a draft for £100, then a banker in New York may find it profitable to sell drafts on London directly to his clients, but to cover them by bills on Berlin, which are to be in turn invested by his agents there in bills on London. These operations, however, involve uncertainties and require skill and accurate calculation to afford a profit.

It might be supposed that in balancing international obligations bills for an equal amount would be drawn on both sides of the account—that is, that if there was a real equality of indebtedness, bills for the same amount would be drawn in London on New York, and in New York on London. This, however, is not a fact. London is the centre on which most bills are drawn. The exporter of goods to England, to whom money is due in London, draws a bill on London entitling him to its payment. The importer of goods from England, on the other hand, who has to pay for goods in London, usually buys a bill on London for making his payment instead of waiting the arrival of a bill drawn against him. The reason for this is the primacy which London has held during at least a century in financial transactions. This primacy is due partly to the fact that a bill on London is payable in pounds sterling, and that pounds sterling represent a definite weight of gold. There is no delay nor discount in realizing an obligation expressed in English money. This is because Great Britain adopted the gold standard in 1816, and has not departed from it even to the extent of charging a fractional premium for gold or by throwing obstacles in the way of obtaining gold at the Bank of England. So important to the merchant and banker is this certainty of the English monetary standard that drafts upon foreign countries are sometimes expressed in English money. This is done in order to escape the risks of fluctuations in the value of foreign moneys, especially those of paper. When the Crimean War broke

out in 1854, the London *Economist* advised merchants having transactions with Russian subjects to conduct their business in their own currency instead of that of Russia, for the reason that "no matter then how low the exchange may fall in Russia, the debtor must provide whatever number of rubles is required to purchase a bill for the necessary amount expressed in the stipulated currency."[1]

The large volume of business done by London bankers and bill brokers has given a reputation to bills drawn upon and accepted by them which does not belong to houses perhaps equally strong which have not been so long established at the centre of exchanges. This has resulted in making bills upon London a favorite form for short investments on the European Continent. These bills are bought by bankers and held for a shorter or longer time, according to the state of their own market and that of London. "London paper" often changes hands many times on the Continent before it is sent to London for collection. It forms one of the best forms of assets in the hands of continental bankers independently of the profit which they may make by arbitrage of exchange. The national bank of Belgium keeps more than half its reserves in foreign bills, largely on London, and a Paris or Berlin banker, by following the same policy, is prepared to meet any sudden deficiency in his cash resources by selling a parcel of his foreign bills.[2] So firm a footing has this system obtained in the international money market that the chief banks of continental Europe have branches in London, upon which large amounts of bills are drawn.[3]

[1] Clare, p. 65. [2] Clare, p. 90.

[3] This condition is not regarded as altogether favorable by W. R. Lawson, who says: "Even the agency business is being gradually taken away from the London banks, and their share of the world's money-market is becoming rather honorary."—*British Economics in 1904*, p. 222.

Very different is the status of bills of exchange drawn on countries having an irredeemable paper currency. No one except a very venturesome speculator cares to hold such bills as an investment, because there is no definable limit to their depreciation. They cannot rise higher in value than gold, except a fraction under the influence of a special demand for currency, but they may fall in value to any proportion below gold. Bills of this character, payable in irredeemable paper, are subject to the law of supply and demand, but the supply is the subject of monopoly on the part of the issuing government, and is not subject to the regulating influence of the free movement of the precious metals which takes place between countries having a fixed metallic standard. Hence has often resulted in such cases violent speculation in bills of exchange payable in irredeemable currency. Thus, when Russia was upon a paper basis, as Touzé points out:[1]

"If it happened, as was often the case, that the Russians were indebted abroad and were obliged to remit English money at whatever the price might be on a given date, there was no limit to the price that might be demanded of such debtors; in other words, there was no limit to the variation of the exchanges. It seemed that the relative value of ruble-paper and cash was no longer one of the elements of the problem. Supply and demand alone determined the price, and if the amount of the exportations of the country did not equal the amount of the importations (as was generally the case), and if the demand for bills necessary to pay for the importations exceeded materially the amount of the bills provided by exportation, the balance to be paid could be settled only at the cost of a great sacrifice."

A similar situation existed for several years in Spain at the close of the nineteenth century as the result of the

[1] *Traité Théorique et Pratique du Change*, p. 35.

over-issues of the Bank of Spain. The railways, which had heavy remittances to make at certain dates to Paris for interest on their bonds, found that the price of bills of exchange on such dates was forced up materially in Spanish currency. The evil was partially remedied by opening a credit at two leading French banks of 50,000,000 francs in favor of the Bank of Spain. The purchase price of bills of exchange was fixed from time to time by a syndicate committee and the different railways agreed not to bid against one another for bills at a higher price.[1] This operation involved in effect the borrowing of the amount needed to meet deficiencies in the amount of bills of exchange offered, and for a few months, by careful management on the part of the Bank of Spain in gathering up local bills in different cities, exchange was kept fairly steady; but the credit in Paris was exhausted within a year and the experiment was not sufficiently successful to lead to a renewal of the syndicate.[2] Upon a nation which founds its monetary system on the quicksands of irredeemable paper heavy burdens are imposed in carrying on business with those nations whose system rests upon the firm foundation of the most exchangeable of the metals.

In a market where the precious metals move freely, it is obvious that the greater the number of cases in which bankers are able to intervene in the market by the sale and purchase of bills, the smaller will be the number of cases in which gold will have to be exported or imported. The offerings of bills arising exclusively from commercial transactions and payable on sight would simply economize cross-shipments of money, but would require that actual

[1] *Économiste Européen* (January 23, 1903), XXIII., p. 107.

[2] *Vide Économiste Européen* (January 24, 1904), XXV., p. 156. Its failure was predicted by Mitjavile on the ground that the available bills would be largely absorbed by those having obligations to meet, who could not afford to wait for the syndicate to appear in the market and reduce rates and would therefore pay any rate necessary to obtain francs.—*La Crise du Change en Espagne*, p. 151.

net differences between the amounts due between different countries should be settled in gold. Such differences could not be considerable without reacting sharply upon the rates for the rental of money, and this reaction would in turn influence prices and the cost of production of goods and would eventually check imports of goods and stimulate exports. The introduction of bankers' bills and securities into the market contributes a modifying influence which prevents a sudden and unnecessary operation of these tendencies. If the balance of payments is only temporary, a considerable indebtedness may be allowed to stand unsettled by either commodities or gold until the balance shifts to the other side. This is coming more and more to be the case where there is a large export of national products at one season and large imports of foreign goods at other seasons.

When gold moves, however, from one country to another, it has more distinctly the character of merchandise than in trade within a country, partly because the fact of its being in the form of coin plays little or no part in its value, and partly because the shipment takes the character of a definite merchandise movement which is easier to trace than in the interplay of demand and supply for the coined medium of exchange within a single country. Gold in international trade is one of many articles of merchandise whose movement is governed by the law of reciprocal demand. There are many special causes which lead to a demand for gold, but fundamentally it acts as a sort of arbiter of the relations of other commodities to one another in the international market. If the cost of production of cotton goods, for example, in the United States as compared with the cost in Great Britain, is increased by means of expanding credit, a high cost of living, and a consequent successful demand by laborers for high wages, exports of cotton goods from the United States to China may decrease, while similar exports from Great Britain increase. Diminished exports from the

United States will result in diminished offerings in New York of bills upon China, or more probably diminished offerings of bills on London through the process of indirect exchange. Foreign exchange in New York will tend to rise towards the gold export point. If gold is actually exported, it will be taken from bank reserves or obtained from the Treasury by the redemption of government notes drawn from bank reserves. The banks, finding their reserves diminished, will be compelled to curtail their loans, in order to restore the proper legal relation between their obligations and their reserves, and this curtailment of loans will check speculation and invite higher bids than before for the use of circulating capital. Hence will arise the increase in the rate of bank discount for the use of money which has proved such an efficient influence in maintaining a healthy equilibrium between the value of gold and of goods in one country as compared with its value in other countries. The exchange market, with its offerings of bankers' bills and its arbitrage transactions on minute margins, tends constantly to overcome movements away from this equilibrium and to give a uniform value to gold in all markets.

Rates of foreign exchange are often said to be "favorable" when they tend to importations of gold and "unfavorable" when they tend to exportations of gold. These expressions have been criticised by some economists upon the ground that trade is an exchange of goods and that too much gold is no more to be desired than too much coal or iron.[1] The expressions "favorable" and "unfavorable" might be taken as a mere elision, meaning that a given rate of exchange is "favorable" to the importation of gold or

[1] Thus Bonamy Price says: "This language is profoundly unconscious that gold is a mere tool. It teaches that gold, or coin, or money is an end, a good thing for its own sake, an article worth giving one's wealth to obtain. It is saturated with the Mercantile Theory, so utterly in vain has Adam Smith written."—*Currency and Banking*, p. 33.

another rate "unfavorable" to its importation. These terms, however, express a deeper truth, which, if sometimes exaggerated, nevertheless represents a fundamental principle of monetary science. This is that the foreign exchanges, by indicating the movement of gold, apply the test of exchangeability to other commodities. There are many movements of gold between nations which are not obviously "favorable" or "unfavorable," but when a nation begins to lose gold which is required for maintaining a sufficient circulating medium and adequate banking reserves, this outflow is properly described as "unfavorable." Such an outflow results, in the case of a sound currency system, from a dislocation of the industries of the country and of the cost of production of the national products in relation to those of other countries. Still more "unfavorable" is such an outflow if it arises from defects in the currency system; for such defects do not usually carry their own cure by the "correction" of the exchanges, but prolong the condition of "unfavorable" exchange until a country has parted with all its standard money and severed its monetary system from the regulating influence of the interplay of supply and demand for gold throughout the world.

VI

THE DISTRIBUTION OF MONEY

Governed by the principle of marginal utility—How the same principle governs distribution of capital—Demand in a community for money may yield to demand for other things—How new money is distributed—How a sound monetary system may be supported by borrowing—Quantity of money needed in a country—Difference between discount rates and interest rates—Why they vary in different markets.

THE essential principle which governs the distribution of money between communities is the so-called law of marginal utility. This principle, as worked out by the Austrian school of economists, is simply the statement in scientific form of the rule that every man will select possible objects of acquirement in the order in which he regards them as most necessary for his use. A mariner about to desert a sinking ship would consider a boat or raft of the highest utility, because it would stand between him and death. He would next choose from the equipment of the vessel, if he had the opportunity, the most nutritious articles of food, and his later choice would turn to clothing, tools for construction and agriculture, or weapons for defence, according to the nature of the country upon which he expected to be cast and the varying degrees of usefulness to him of the objects open to his selection. For the natural man food is among the first objects of utility; shelter perhaps comes second; and clothing next.

Substantially the same order of selection prevails with communities far advanced in civilization and with their

individual members. The laboring-man who receives ten dollars a week has up to that value the entire world of commodities which are offered for sale in accessible markets among which to choose his objects of expenditure. He might devote the entire sum to wines or diamonds. He is driven, however, by the principle of marginal utility to employ his slender resources in buying the articles which he thinks necessary to sustain life. A loaf of bread each day becomes to him of the highest marginal utility, because that or its equivalent in nourishing qualities is absolutely necessary to his existence. It is only the first loaf of bread each day, however, which has this high utility. Ten loaves become less valuable in proportion as they become less necessary to life and comfort. When a sufficient supply of bread, therefore, has been purchased, the marginal utility of the next most useful article becomes greater than the surplus loaves of bread, and the surplus of earnings above the amount required for the bread is applied to the next article. Thus, by a graduated scale, determined in every case according to the estimate of utility of the article, purchases from income are extended over an enlarged series of articles, according as a sufficient supply of those most essential has already been obtained.

This principle of marginal utility governs the investment of capital and the movements of money. It is the principle which gives transferability to capital and draws it in the directions which promise the greatest returns. As the community will pay the highest prices for those articles upon which it places the highest estimation under the law of marginal utility, it follows that capital will earn the highest returns if devoted to producing these articles. The distribution of capital between communities and between industries will be determined in the long run by the utility of its employment to the owners of capital, and this will depend upon its degree of utility to the community. This utility will

be indicated by the rate of interest. Capital will, therefore, be diverted, as rapidly as friction can be overcome, from employments which are less advantageous to the community (according to the current estimates of utilities) to those which are more advantageous.

Capital will have a higher utility in a new community, whose equipment of producing plant and means of transportation is incomplete, than in one where this equipment is already well advanced. Reason for this is found in the fact that the supply of capital has become comparatively large in the older community in proportion to the demand for it, and it is the marginal price of the excess which determines the rate for all. There will be no such excess in the less advanced community, and the rate will be determined by the offer which the users of capital are willing to make for the insufficient supply in the market. Thus the permanent rate of interest will be governed by the supply of loanable capital. A small supply will be employed in the most essential works and will yield the highest marginal utility. When a community has been provided with these, the excess of loanable capital will be employed upon less necessary objects and will yield less utility to the community.[1] When the supply becomes very large, the position of the borrower and lender are, in some sense, reversed, and the lender will make concessions in order to obtain some return from his saved capital. How these contentions between the borrower and the lender are reduced to a nicety upon a uniform and graduated scale by the operations of the stock market will be set forth hereafter.

The distribution of money is governed, like that of

[1] "In a developing society, a colony, or a new country, when everything has yet to be created, capital, independently of demand and supply, is infinitely more productive than in an old society, where the larger part of the works of the highest degree of usefulness has already been provided."—Leroy-Beaulieu, *De la Répartition des Richesses*, p. 242.

other forms of capital, by the law of marginal utility. A community which has much capital is able to invest a considerable portion in the tools of exchange; a community without saved capital, beyond the amount necessary to maintain current production, is able to invest but little in the tools of exchange. How this principle operated in the early history of America is well set forth by Dewey:[1]

"As no silver or gold mines were worked in the settlements, the only source of supply of the precious metals was through trade and shipping; that is, by exporting commodities to a greater value than were imported, or by acting as carriers for English commerce. The colonists were, however, in constant want of manufactured commodities and articles of luxury which could be obtained only on the continent, and consequently, even if the balance of trade in staples with England or the West Indies was favorable, the final settlement of indebtedness to America was more likely to be made in merchandise than in silver. The consequence was that the quick amount of a standard money medium did not keep pace with expanding industry and internal commerce."

This is the scientific explanation of the state of the currency in nearly every new country. A community which began without saved capital and was able to produce only enough goods each year to supply its pressing needs for food and clothing could not afford to set aside anything as a medium of exchange. A unit of value might be conceivable in such a community, but all exchanges would resolve themselves into a system of barter, more or less refined. When such a community saved sufficient capital to set aside a small portion for investment in the medium of exchange, it would be able to employ a limited, but perhaps insufficient, amount of the precious metals. The law of marginal utility in such

[1] *Financial History of the United States*, p. 19.

a case would lead to the employment of the cheaper rather than the dearer metal. The cheaper metal, as silver, would serve the purposes of such a community better than the dearer metal, as gold, not only because of the greater ease of obtaining it for goods and retaining it in circulation, but because its greater bulk and comparative divisibility would adapt it better to small transactions. Only as surplus capital became adequate for investment in the tools of exchange of all that public convenience required would a stable and sufficient gold currency be retained.[1]

In this principle is found the key to many puzzling phenomena in monetary history. The advocates of an inferior or depreciated currency have often relied upon arguments lacking in straightforwardness, because they have not cared to make the confession that their community was too poor to set aside large capital for investment in the medium of exchange, or they have not clearly grasped the law governing the facts. Even where the effort has been made in such communities to create and maintain a currency of high cost—that is, requiring a large investment of real capital—the principle of marginal utility has often made the experiment a failure. The people have instinctively sorted out, from the variety of articles offered for their use, those having the highest marginal utility. It is quite obvious that food, clothing, and other necessaries in a simple community would out-

[1] Lexis declared that the weaker states, in an economic sense, "especially those deeply in debt, will have to decide to forego the gold standard. They will, perhaps, make a few more attempts to establish a gold standard, and as a rule they will actually obtain the gold required to make a beginning, but they will not be able to keep it in free commerce."—Report of the Berlin Silver Commission, Senate Misc. Doc. 274, 53d Congress, 2d Session, I., p. 134. This was written in 1894, before the great increase of gold production, which has made it easier for weaker countries to obtain gold, but makes a correct statement of the principle involved.

rank the use of gold and silver in the order of human wants. The process of selection becomes more complicated as communities advance in civilization and in the accumulation of capital, but by degrees the natural law of selection of the commodity having the highest marginal utility keeps that commodity at home, and sends abroad in exchange the commodity having a less degree of marginal utility.[1]

The tendency to devote saved capital to the increase of the goods necessary for comfort and for effective competition with other communities is so persistent that in a community whose saved capital is close to the margin necessary for the purpose there is a constant substitution of paper credit for metallic money up to the margin of safety and even beyond this margin. This tendency is aided by the demand for notes as a tool of exchange, which keeps them in circulation even when the security for them is not of the best. This is the explanation of the abuse of banking credit in comparatively poor communities. How this condition was brought about in the early history of the United States is thus set forth by Simon Newcomb:[2]

"In new countries, where the rate of interest is high and the demand for loans great, the temptation is much stronger than elsewhere. Thus arose the 'wild-cat banking' which was so prevalent in our new States during their early history. When a 'wild-cat' bank was established, its practice was to loan its own notes on interest. The banker knew that there was little immediate danger

[1] "The demand of one class of the population for cotton to spin, and the demand of others for wheat or for beef, are not and cannot be subordinated to the desire which any set of men or of institutions may feel to see gold flow in. On the contrary, the requirements for consumption, determined by the occupations and relations of a great people, are fundamental conditions, to which financial interests and policies, under whatever name, must of necessity conform their action."—Dunbar, *Economic Essays*, p. 258.

[2] *Principles of Political Economy*, p. 171.

of those notes coming back in great numbers, because the community was too much in want of them as money. He was therefore tempted to loan them on insufficient security, especially as good security was difficult to obtain under the circumstances. If he could induce his customer to carry the notes to a great distance, the danger of their being returned for payment became still less. So long as people would take his notes, he was thus enabled to draw a high rate of interest on a very small capital."

One of the reasons why money tends towards the commercial centres at the expense of the agricultural sections, when the supply in a country is not sufficient for all sections, is its greater usefulness at such centres. Even if there was no difference in the capital available in each case for investment in a metallic currency, a greater service *per capita* would be rendered by a given volume of money in the cities than in the agricultural districts. The business of the cities is essentially the exchange of commodities, while that of the agricultural sections is the production of them. While production usually involves more or less of exchange, the ratio of exchanges to the population is smaller. This not only makes a large volume of money less essential to the producing sections, but makes the active work imposed upon a given piece of money much smaller. This is inevitably the case from the more scattered character of the population in the country districts, as well as from the smaller ratio of the occasions for making exchanges than in a population where exchange by trading is the chief business of a large part of the community.

If the cost of the use of money could be divided among the population by the service which it rendered during a given period, it would be found that a single piece performed many times the service in exchanges in the cities which it performed in the producing districts. If, for illustration, the convenience of employing money to make

exchanges was worth one-tenth of one per cent. for each exchange, it might be found that a given piece of money would perform five exchanges in a day in a trading centre, making the cost per day for employing the money in each transaction only one-fifth of the total cost of its use. In the producing sections, on the other hand, only one exchange a day might be performed, imposing the whole cost of the use of the money upon the individual who employed it for this exchange. Thus the marginal cost of the use of money in proportion to the transactions performed is greater in the agricultural or producing districts than in the trading centres. This difference in cost, although difficult to trace in detail, would probably be felt in slight differences in prices of commodities, discount rates, and banking commissions, which would lead the country districts to employ the minimum of actual money which could be employed, or even less than what might be profitably employed.[1] The man who employed money in the trading centre, whether by direct borrowing from banks or by granting trade discounts for cash, would obtain the use of such an amount of money as convenience required at a small fraction of what its cost would be in the producing districts, and would therefore employ it more freely.

This conflict between the demand for money as a necessary implement of trade and the demand for other things explains the absorption of the large production of gold during the last few years in countries which formerly lacked a sufficient gold currency. Incidentally, also, it shows what powerful laws of distribution come in con-

[1] An inquiry made in 1881 showed that the proportion of coin paid into certain banks of the Metropolitan District of Manchester was 25.21 per cent. of the total payments, while in certain towns reporting it was 17.31 per cent., and in sixty-one agricultural places only 10.68 per cent. The proportion of coin used in the Manchester suburbs, where there was a large demand for wage payments, was 34.9 per cent.—G. H. Pownall, *Journal of the Institute of Bankers* (December, 1881), II., p. 636.

flict with the direct operation of the quantity theory of money. The gold money of the world increased from $1,209,800,000 in 1873 to $5,685,700,000 on January 1, 1904. If the new gold had simply found its way into countries already employing a gold currency, and into those parts of such countries where gold was already most plentiful — simply placing three and a half additional ounces of gold beside every ounce already in use—the effect would undoubtedly have been seriously felt upon prices and upon national stocks of the metal. The new money, however, was far from being distributed in equal parts among the countries already equipped with a gold currency, or in those parts of such countries which were best equipped. These countries materially increased their holdings of gold, but a large part of the new supply sought new outlets, where a gold currency had not before been used. The following table shows the remarkable increase in gold equipment in several leading countries, and indicates also the appearance among gold-standard countries of nations which, down to a recent date, possessed little gold currency:

STOCK OF GOLD MONEY IN LEADING COUNTRIES

COUNTRY	*Stock in 1873*	*Stock January 1, 1904*
United States	$135,000,000	$1,320,400,000
Great Britain	160,000,000	530,400,000
France	450,000,000	968,300,000
Germany	160,200,000	801,400,000
Belgium	25,000,000	30,000,000
Austria-Hungary	35,000,000	286,800,000
Netherlands	12,000,000	28,400,000
Russia	149,100,000	783,700,000
Australasia	50,000,000	128,600,000

Examination of this table shows that the greatest percentage of increase in the gold stock was not in the countries which were already rich in 1873, but in those which were then struggling towards greater wealth and a greater degree of economic independence. The reason why so much of the new gold went to countries formerly

without a gold currency is found largely in its relatively small utility in the countries already equipped with such a currency. There is little doubt that these richer countries would have been able to retain the new gold if they had preferred it to other forms of capital, but they did not need it. Austria-Hungary, Russia, Japan, and several South American countries, which needed it more, adopted the gold standard and took the proper measures by the issue of loans to obtain the gold without foregoing necessary purchases of other things abroad.[1]

New supplies of the metals or new issues of bank-notes find their way into communities which have carried on business mainly by barter, and where an increased amount of metallic or representative money adds materially to the convenience of transactions.[2] A demand for additional supplies of money was found even in France after the Californian gold discoveries, when the new gold worked its way into the rural districts and supplied a medium of exchange where it had before been lacking. The same was true in many of the states of Germany and in the United States. These countries have gained materially by the opportunity of obtaining an adequate supply of the medium of exchange, but these supplies have not in-

[1] Japan derived her surplus gold, without impairing her productive resources, from the indemnity of 200,000,000 taels ($100,000,000) levied upon China by the treaty of Shimonoseki. The manner in which £30,476,642 in English gold was transferred to Japan is fully set forth in the Report on the Adoption of the Gold Standard in Japan, by Count Matsukata, pp. 223–225. The process was somewhat similar to that by which Germany was enabled to draw gold from leading money markets, without sacrifice of her own capital, from the proceeds of the war indemnity levied upon France in 1871.

[2] "How many new markets," exclaims Cauwès, "have been opened to money since the sixteenth century! Eastern Europe was still half-barbarous and America had just been born to civilization. There has been a sort of race between the accumulation of money by exploitation of the mines and the development of the commerce of the world."—*Cours d'Économie Politique*, II., p. 159.

creased prices in the proportion which they bore to the pre-existing stocks of the precious metals. In France they caused some increase of prices in the rural districts by means of the increased activity which was given to trade, but not in proportion to the increase in the supply of the metals, which in some communities was many hundred per cent. How useful in meeting the needs of growing trade were these unexpected supplies of gold in France was thus set forth by Horn as long ago as 1866:[1]

"Twenty-five or thirty years ago three-quarters perhaps of the rural population of France still lived almost exclusively under the régime of barter. . . . At most the small cultivator sold from time to time a few hectoliters of grain or some head of cattle, a few fowls and vegetables, to pay the farm rent, pay taxes and make some absolutely necessary purchases of furniture, clothes, tools, and implements. Such a condition of things assuredly required but a small employment of the instruments of exchange and circulation. All this is changed to-day for two quarters at least of the three of which I have spoken. Railways in a special degree, the development of education in general and of economic education in particular, the great abundance of precious metals, the propagation of banknotes, have brought the country districts to the centres of population, the most isolated and backward into the general movement of affairs. The régime of exchange extends its domain before our eyes. Purchases and sales are multiplied in the villages and are introducing themselves into the hamlets. In those *arrondissements* and cantons where formerly the bill was a myth and the gold louis a phenomenon, hundreds of thousands of francs and even millions in specie and in bills are now in continuous rotation, promoting a movement of transactions which grow in intensity and extent day by day."

The fact that the quantity of gold in a country is de-

[1] *La Liberté des Banques*, p. 263.

termined by its marginal utility in reference to other articles explains why the *per capita* circulation differs radically in different countries, without necessarily involving a corresponding difference in the range of prices. If the quantity theory of money in its crudest form were true, then a *per capita* circulation of less than fourteen dollars in Great Britain and of twenty-four dollars in France should cause the price of wheat in Great Britain to be fourteen pence per bushel when it was twenty-four pence in France. This would be obviously impossible under the modern system of transportation, which tends to bring prices to a level in international markets. Why then does not the money of France pour in a golden torrent into Great Britain, in order to keep the ratio of money to prices there the same as the ratio in France? It does not appear that the volume of business in France is more than one and a half times that in Great Britain. On the contrary, it is probable that the volume of business in Great Britain is larger in proportion to population than in France.

The explanation of this seeming contradiction is inadequate and unsatisfactory under the usual form of stating the quantity theory of money. It is true that it may be ascribed to differences in the mechanism of credit, but such an explanation hardly goes to the root of the problem. If the French people were not sufficiently rich in capital to be able to afford a large volume of money as a tool for carrying on their exchanges, a deficiency in the mechanism of credit in France would tend as much to reduce the demand for money by hampering transactions as to increase the demand for it. But in France there is a large volume of transactions to be carried on, because there is a great output of the products of French industry. The French people, because of their limited use of credit, which has given a high marginal utility to gold, have been willing to exchange their products in international trade for gold, while Great Britain, with a more perfectly organized sys-

tem of credit, has been able to exchange her products chiefly for things other than gold. But Great Britain is in a position to obtain gold when she needs it, as quickly as any country, and more quickly than most, by reducing the prices of a few of her great output of exportable articles whose marginal utility at home is reduced by excess of supply.

The principle of marginal utility, which explains the ability of France to acquire a stock of gold two-thirds larger *per capita* than that of Great Britain, explains the contrary phenomenon of a scanty supply of money in countries whose resources are small. If the quantity theory were applied in its crudest form to a country with a small stock of gold, like the United States in 1897, with a *per capita* stock of only about seven dollars, prices in the United States should be very much lower than in Great Britain, with her *per capita* stock of about fourteen dollars in gold. In so far as the United States were equipped with credit instruments redeemable in gold on demand, the inequality in the stock of gold would be partly counterbalanced; but in a country where the entire stock of redeemable money was inadequate for a normal volume of transactions, it would follow from the quantity theory that prices should be extremely low and that a large influx of gold should occur.

Undoubtedly, in such cases, there is some tendency to export certain goods at prices which are not only low in terms of gold, but which involve a large proportional sacrifice in labor. The essential point to be noted, however, in reference to the relation of such exports to gold, is that they are not made to obtain gold so much as to obtain other necessary commodities. In other words, the marginal utility of the importation of certain commodities is greater than would be the utility of importations of gold. Such countries, so far as their policy is determined by individual producers and consumers, tend to prefer certain necessaries or comforts of life to the investment

of capital in an adequate medium of exchange. In such countries there is a constant tendency to economize the use of money to the danger point, because the capital required for the maintenance of a metallic currency cannot be devoted to this purpose without sacrifice. Hence in the United States, prior to the Civil War, and in many other poor countries, it has been continuously the case, for many years at a time, that their stock of gold *per capita* was smaller than that of other countries without causing a corresponding fall in general prices.[1]

So strong has been the momentum acquired in recent years by the sentiment in favor of gold that some of the poorer nations, less qualified by their economic strength than the rich countries to maintain a gold currency, have been carried perhaps too far along the same path. It may be doubted whether a nation of weak economic resources can successfully compete without serious sacrifices for that part of the gold stock of the world required to provide an adequate gold currency. Where the gold can be defended in a measure by the policy of the government or the banks in charging a premium for it the problem becomes easier. There is a considerable difference between a currency based on a gold standard and a gold circulation. The one can be obtained and defended by proper legislation; the other more or less defies legislation and tends to drain a country of slender economic resources of its monetary stock.

An illustration of this principle is afforded by the experience of Chile, one of the most progressive of the South American republics. The wealthy portion of the Chilean population is only a small percentage of the whole, and experience has seemed to show that the country is not sufficiently strong economically to retain a gold currency in use. The experiment of a gold currency was inaugu-

[1] This principle was partially recognized at the time. It is declared by Raguet, "A rich nation, *cæteris paribus*, will require more gold and silver than a poor one."—*Currency and Banking*, p. 5.

rated under favorable conditions in 1895. For a time gold circulated freely and the country seemed to be restored to a sound monetary basis. But the shadow of political disturbances and the demands of the foreign exchanges caused a drain upon the gold supply in 1898 which was not arrested until the country was almost denuded of its monetary resources. Then came the inevitable suspension of gold payments and the recurrence of the conditions so frequent in the history of weak countries—the issue of an irredeemable paper currency.

A run began upon the banks in June, 1898, an extension of debts was granted by the government, and an act was passed on July 30th, providing for the issue of 50,000,000 pesos ($18,000,000) in paper. An effort was made to provide a redemption fund and for resumption of gold payments on January 1, 1902,[1] but on the arrival of that date a new law prorogued resumption to January 1, 1905.[2] The report made by the United States minister on the occasion of the first suspension throws an interesting light on the difficulties which were encountered from the beginning in maintaining a gold circulation in Chile. When the resumption act went into effect the banks had not made proper provision for redeeming their notes in gold. When the government sought to compel compliance with the law, it was met with statements that such a course would ruin the banks and throw into confusion the commerce of the country. One delay after another was granted, therefore, and bank-notes, instead of being incinerated when redeemed in gold, were again put in circulation. The absence of sufficient gold to put the country on a real specie basis is thus set forth:[3]

[1] Report of the Director of the Mint for 1898, p. 402.

[2] Report of the Director of the Mint for 1902, p. 273. A further postponement to 1910 was authorized in 1904, with an issue of 30,000,000 pesos of new paper.—U. S. Consular Reports (April, 1904), LXVIII., p. 14.

[3] Report of the Director of the Mint for 1898, p. 398.

"Operations were all on a fictitious basis, everything being done by check, the principal business of the country being transacted through the Bank of Chile, which was not in a sound cash position. It was not an infrequent thing between banks to discharge balances, payable in gold to the extent of millions, with a small percentage in gold and the remainder in checks and bank-notes."

These are substantially the same symptons of financial weakness which prevailed in the United States in their early history. The scanty supply of saved capital sought investment in other things than a costly medium of exchange and compelled the banks to keep up a pretence of specie payments which was little more than a fiction.

An important means of supplying a poor country with a sound and sufficient supply of money is afforded by the resources of modern finance. It is possible for a country having need for money, but having only a small fund of capital for investment, to obtain it by borrowing. This is rendered easy by the modern system of transferable securities. The sale of such securities to capitalists of lending countries having a surplus fund of loanable capital has the practical effect of giving to the borrowing country a great quantity of the implements of production and exchange—finished machinery, railway equipment, the raw materials of manufacture, and even luxuries — without compelling immediate payment. Early payment may be made to the dealers in these articles in the lending country, but is made substantially from the funds contributed by the lenders in that country when they purchase securities issued in the borrowing country. The financiers of the latter country, in paying for these means of development by the delivery of pieces of paper in the form of negotiable securities, increase the capital available at home, without sending out anything of direct value in payment. Gold may be obtained in this manner as well as other commodities. The power to acquire gold, moreover, is increased by the supply of capital which has been intrusted to the

borrowing country. The metal is perhaps more liable to flit across national boundaries or across the ocean than other articles, but a well-organized credit system and business customs and laws which protect the sanctity of contracts make it far from impossible to retain a gold currency in the face of comparative poverty of native resources.

One of the best illustrations of the maintenance of a gold currency by borrowing is that of the Russian Empire. Russia struggled for more than one hundred years, from 1768 to 1895, with irredeemable paper currency, constantly fluctuating in value. Attempts were made on four different occasions—in 1817, 1839, 1860, and 1881—to retire the paper and return to a specie basis. All these attempts failed for various reasons until 1895, when the government was enabled to accumulate a gold reserve of nearly $500,000,000, including foreign credits. A series of well-considered measures for the acceptance of special gold deposits at the Imperial Bank, the issue of gold certificates, and finally the free payment of gold for public obligations at a fixed rate of exchange with the paper currency, put Russia finally and securely upon the gold standard. The outstanding paper currency, which stood at 986,600,000 rubles ($510,000,000) on October 1, 1897, when the gold circulation was only 107,000,000 rubles, fell to 555,000,000 rubles on October 1, 1899, while gold was in circulation to the amount of 662,300,000 rubles. Even with this large circulation of gold, the reserve of the Imperial Bank retained 856,000,000 rubles ($445,000,000) in gold, exceeding by more than 300,000,000 rubles the amount of bank-notes remaining in circulation.

The capital which enabled the Russian government to accomplish such important results within so short a space of time was obtained by the issue upon the Paris and Berlin markets of Russian national securities, which was supplemented as soon as the gold standard was fairly established by large issues and sales of the securities of Russian mining

and industrial companies. The public debt was increased from 11,619,434,008 francs on January 1, 1887, to 16,567,830,000 francs ($3,150,000,000) on January 1, 1900, but without any material increase in interest charges, because of the heightened credit derived from the maintenance of the gold standard.[1] This large fund of foreign capital was brought into Russia without direct compensation in the export of Russian products, and contributed to the remarkable industrial development of the country in recent years. It is obvious that the policy of prompt fulfilment of obligations and the adoption of a fixed monetary standard produced results far superior to any which were realized during the many years when the government sought the elusive profit derived from forced issues of irredeemable paper.[2]

The experience of Russia demonstrates that it is far better economy for a poor country to maintain its credit unimpaired, and thereby to attract the aid of foreign capital for developing its resources, than to rely upon the questionable expedients of an unsound financial policy. An equipment of the medium of exchange based upon the standard of other civilized nations may thus be obtained without crippling the native resources of the country which are necessary for production. The organization of credit should permit the greatest possible economy in the use of the precious metals up to the point where the maintenance of a metallic currency and of confidence in its soundness are unimpaired, but economy becomes short-sighted and harmful when it goes beyond this point. A country relying largely for its development upon borrowed

[1] *Fonds d'Etat Russes et Autres Valeurs Mobilières créée en Russie*, pp. 39, 64.

[2] It is declared by Anspach that before the monetary reform "Foreign capital, of which Russia stood greatly in need to exploit her natural resources, was difficult to attract, because capitalists always feared that the profits realized would be swallowed up by the decline in the quotations of the credit-ruble."—*La Russie Économique*, p. 82.

capital runs grave risk of the withdrawal of such capital if its good faith is called in question, as was the case with the United States after the passage of the silver law of 1890. The panic of 1893 was largely due to the withdrawal of foreign capital after the Baring crisis at London in 1890. This withdrawal was caused partly by the need for money in London, but largely also by the fear of foreign investors that the United States were slipping, consciously or otherwise, from the gold on to the silver standard.[1]

It does not follow from the high cost of a gold currency, and the greater relative ability of a rich country to retain it, that such a country should employ an excessive volume of metallic currency, or should not avail itself of reasonable economies in its use. The question of the relative efficiency and utility of the instruments employed comes into play in the wealthy community as well as in the poorer. If book accounts and methods of credit will permit the carrying on of exchanges in as perfect a manner as the employment of the precious metals, then the highest economy, even in a wealthy community, will justify their employment. The necessity of reducing competition with other producing countries to the closest limits, under the law of marginal utility, may suggest the investment of capital in other parts of the machinery of production rather than in the tools of exchange. Under

[1] The effect of a sound monetary system is felt not only upon investments of capital of a permanent character, but also upon the movement of the loan fund. Thus the *Wall Street Journal* of May 24, 1904, in its usual daily review of the money market, said: "Ever since the enactment of the gold standard law of March 14, 1900, there has been competition in the New York money market between foreign and domestic capital. Before that law was passed, foreign bankers required gold notes for loans and were indisposed to put their money out freely. Since there has been no possibility of question in regard to the kind of money in which loans were to be paid, foreign capital has been eager to place loans here whenever rates were a shade better than at home."

such conditions the true marginal utility of the precious metals will be found at the point where the amount employed is sufficient, with instruments of credit, to carry on business with the greatest ease, insure confidence in the monetary system, and maintain a sufficient reserve of the precious metals to prevent specie suspension in periods of depression or emergency.

Great Britain, the wealthiest country in the world, has a *per capita* circulation equal to about two-thirds that of the United States and less than half that of France. Some of the poorest countries exhibit the largest volume of currency *per capita*. What is the explanation of these apparent departures from the rule of investment in money in proportion to the effective demand for it? Some of the poorest countries showing large supplies of money are producers of the precious metals and are not able to dispose of their metallic products for other goods promptly enough to prevent a large accumulation. They may be considered, in a sense, as surplus stocks of their product rather than as money. The differences between the leading commercial countries, however, are due to other causes. The chief cause is the organization of the system of credit. It may be assumed that the five leading commercial countries—the United States, Great Britain, France, Germany, and Belgium—are upon a nearly equal footing, so far as their ability is concerned to obtain an adequate supply of metallic currency. If the proportions differ widely it is because one has availed herself more or less largely than another of substitutes for money.

If the credit system is well developed, the quantity of money used will be proportionately less.[1] If a given

[1] "But if it be true that a developing nation increases for a period the quantity of its money, it is none the less true that a time arrives when the necessity for increasing the monetary stock is no longer felt—when, on the contrary, the industrial mechanism, in becoming more perfect, permits the same quantity of transac-

country with a highly developed credit system employs more metallic money than some other country without a credit system, the explanation of the seeming paradox is found in the larger demand in the former case for both money and its substitutes expressed through a larger volume of transactions. Thus several rules operate upon one another — the ability to invest capital in metallic money, the rapidity of the use of such money in town and country, the degree to which the use of credit has obviated the necessity for money, and the volume of transactions expressed in money—to create wide differences and seeming confusion in the relative equipment of each community with money; but underlying them all is a real harmony of distribution which responds to the rule which Kinley lays down:[1]

"Although resort to direct barter is not available, society can vary its exchanges through credit, and will do so until the marginal utility of money for effecting exchanges directly is equal to its marginal utility for effecting them through the credit machinery."

What has thus far been said in regard to the distribution of money and its substitutes may be said to relate to its permanent distribution among trading countries. It remains to consider the more transient movements which carry money back and forth between countries reasonably well-equipped with currency, and the reasons and methods of such movements. A civilized country which has become accustomed to the general use of money is not likely to part with the amount required for ordinary transactions, even under severe pressure. The benefits of using money as a medium of exchange are so great and obvious after its use is once introduced, especially in towns and cities, that a real penury of money for retail transactions is seldom permitted, even for the purpose of obtaining other important benefits. Such

tions to be effected with a less quantity of money."—Beaure, p. 83.

[1] *Money*, p. 134.

changes as occur, therefore, in the supply of currency in a civilized country are those which affect the speculative funds and loan funds, and their influence is first felt upon bank reserves and the stock exchanges. These changes only rarely go far enough to reach down into the pockets of the masses and draw out of a country the necessary equipment of the means of exchange. If a serious deficiency of money develops for any reason within a country as compared with its neighbors, the influence is finally felt upon prices of certain classes of exportable goods. Prices will fall and will attract money for the purchase of good from countries where money is more plentiful and prices of goods are higher. The results are thus set forth by Pantaleoni:[1]

"There will therefore be an influx of money into the market where prices are low from the one where they are high, which will continue until the increased amount of money in the first, by causing a rise of prices, and the diminished amount of money in the second, by causing a fall of prices, have brought about a uniform level of prices in both markets. This phenomenon is expressed in another Ricardian theorem—viz., *that the amount of the currency is regulated in each country by its value.*"

This explanation of the causes underlying the movement of money is subject to some qualification, and relates, in a large degree, to the permanent distribution of money. It requires to be supplemented by a statement of other influences which affect its temporary distribution. The temporary transfer of instruments of credit is usually due to changes in the rate of discount. The modern mechanism of credit, of which the discount rate is a part, affords several steps for restoring equilibrium between the demand and supply of money before prices of commodities are seriously affected. A surplus of currency affects the discount rate, which is the charge for

[1] *Pure Economics*, p. 234.

the rental of money, and the rate of discount determines the movements of money.[1] How wide these differences have been between rates of interest and discount is illustrated by the following table, which shows for a period of seven years the average discount rate of the Bank of England and the average interest rate afforded by English consols:[2]

YEAR	*1879*	*1880*	*1881*	*1882*	*1883*	*1884*	*1885*
Discount rate...	2.63	2.75	3.50	4.12	3.54	2.53	2.91
Interest rate....	3.07	3.03	3.01	2.96	2.97	3.02	3.02

The reason for these differences between the discount rate and the rate of interest is found in the different subjects with which they deal. This is defined by Nitti as follows:

"The duration of operations of commercial discount makes bank loans, contrary to current opinion, loans of money and not of capital. This explains why monetary phenomena have a marked influence upon discount, while they have but a mild action upon interest. The rate of interest varies only over long periods, while the rate of discount varies rapidly. The reason for this difference between two phenomena which are so similar in appearance is in the difference in their essence. The first is a loan of capital; the second is a loan of money. Discount is then only a phenomenon of the monetary circulation and must suffer the reaction of numerous and frequent variations in the value of money."

It should be added, in qualification of this view, that money and banking credits are the concrete expression to a large degree of the fund of floating capital seeking

[1] "It is clear that, notwithstanding a necessary parallelism between the variations of discount and of interest under a system of pure economics, capital and money are essentially different, and the market for loans of capital is not the market for loans of money."—Pantaleoni, p. 263.

[2] Nitti, in *Revue d'Économie Politique* (May, 1898), XII., p. 371.

investment for short terms. The scarcity of such capital is more closely linked with the scarcity of money than is the scarcity of capital invested in permanent forms, or seeking such investments. The loan fund of floating capital is not exactly identical with the money supply, but the two are more nearly coextensive with each other than either is with the entire fund of capital. They therefore respond more nearly in the same degree to common influences. Money is subject to the laws which govern other merchandise. There is often a special demand for money as such independently of the demand for capital. Under normal conditions of the market the value of money, as influenced by banking operations, is determined by changes in the discount rate rather than by changes in the prices of commodities. A rise in the discount rate, which adds to the value of money for the time being, may have a reaction upon prices, but the fact which is indicated primarily by the rise in the rate is that the circulating medium is not adequate to the demand for its use. An adequate supply of the circulating medium may be attracted through the discount rate without any marked influence upon prices of commodities.

If the discount rate is so efficient and sensitive a factor in the distribution of money, it may be asked why discount rates do not exhibit greater uniformity in different countries. The average rate of discount in 1895 at London, for illustration, was two per cent., while the rate at Brussels was 2.60 per cent., at Berlin 3.15 per cent., and at Rome and St. Petersburg five per cent.[1] Why did not a rate of five per cent. at Rome and St. Petersburg draw gold in an overflowing stream from London and Brussels and compel the banks there to raise their rates? The answer is found in the various component elements of which the rate of discount is made up. It includes not

[1] *Bulletin de Statistique* (January, 1897), XLI., p. 90.

only the rental charge for money, but the rental charge for the use of capital. These charges are affected by some elements in common, but each is subject to special influences which do not act upon the other. The rate for the rental of capital differs permanently between countries. This difference is due in some degree to the friction which interferes with the free play of economic laws, but is due also to a number of special causes. Neither capital nor money possesses perfect transferability, but money comes much nearer to doing so than other tangible forms of capital. It is a reasonable proposition, therefore, that, in order to draw money from one country to another by changes in the discount rate, the advance in the rate must be more than the differences in the rates for rental of capital in the two countries. If the discount rates set forth above for 1895 represented the normal rate for the rental of both capital and money, in the countries named—which was pretty nearly the fact at that time—it is obvious that a demand for money in London which resulted in an advance of the discount rate to three per cent. might attract money from Brussels, but would not attract it from Berlin or Rome. It would be necessary, in order to attract money from Berlin, to put the rate in London at, say, 3.50 per cent., and, in order to attract it from Rome, to put it at 5.50 per cent. If it was desired in those markets to protect their money supply, a slight advance above these rates would be made there. There is sufficient sympathy between the European markets to cause an advance in the discount rate in one to be followed usually by advances in the others, but the advance is added to the normal rate for the rental of capital, which differs from country to country.[1]

[1] With the extension of international banking, there is a growing tendency towards bringing rates for both capital and money nearer together in different markets by placing the surplus capital of one at the disposition of another, where rates are high. Much German capital has been thus embarked in recent years in Italian

The element of risk is an important factor in determining the rate for loans, although it is not always distinctly separated, even in the minds of borrowers and lenders, from the charge for the rental of capital under conditions of security. There is a complexity of elements which increase or diminish risk, which includes not merely the relative certainty of profit in investments and the standard of commercial integrity, but also special commercial habits and laws governing the collection of debts. One of these elements is the nature of the monetary standard and the laws which govern it. A short-term loan in London has for many years represented the minimum of risk because of the certainty that it would be paid in a single metal, the steadiness of monetary conditions there, the rules of prompt payment which govern English commercial transactions, and the laws which enforce these rules. The risk of loss is in general less in an old country, where conditions are comparatively fixed and the chances of profit can be reasonably calculated, than in a new country, where enterprises are constantly undertaken which have not the experience of similar enterprises in the past as a guide for determining profits. In new countries, therefore, a higher discount rate is charged for reasons which are distinctly economic. The standard of commercial integrity is usually more definite, and its rules are better known, in a country long accustomed to trade than in one where trade is just developing. In the old country greater "conservatism" prevails; in the new country, greater daring and bolder taking of risks, which add to the danger of losing borrowed capital.

The influence of legislation upon the movements of capital is great, in spite of the fact that legislation often involves an interference with the free play of economic principles. When several states of the United States

banking companies in Genoa and Rome, with a view to earning for the German stockholders the high rates for money and capital which prevail in Italy.

passed laws during periods of crop failure and depression, tending to make it difficult to collect debts and foreclose mortgages, insurance companies, bankers, and other classes of lenders naturally refused to extend loans where such laws prevailed, and withdrew the capital already invested as rapidly as possible, with the result of greatly raising the rate charged for money by the borrowers who continued willing to take the risks. Dangerous and fraudulent investments, in addition to the direct risk involved, tend indirectly to raise the rate for the rental of capital by withdrawing considerable amounts from legitimate use and diminishing the available supply.[1] These elements confuse the real difference between the economic value of capital in an old country and an undeveloped one and make the actual discount rates farther apart than the purely economic difference would make them.

Another reason for wide differences in the charge for loans is found in the relations of supply and demand in different markets, as affected by the degree of friction involved in transferring capital. A comparatively small equipment of gold would oversupply the needs of the St. Petersburg market, if introduced suddenly from London or Paris, but would not at once force down the discount rate in a degree corresponding to the increased supply, because a high rate has been established by custom and the circle of solvent borrowers could not be indefinitely extended. The effect of security and large supplies of gold in reducing the average discount rate proceeds gradually in countries whose economic condition is improving, until low rates become customary and the market becomes more sensitive to changes in the rate.

[1] "The point of equilibrium of the supply and demand of capital is forced upward by the action of the speculators who are not really in a position to offer interest, but who are enabled by the blindness of certain sections of the investing public to compete in the market for industrial loans."—Hadley, p. 283.

Friction and the cost of transferring money explain the differences which have prevailed on many occasions between Paris and London, when the loan of capital was almost equally safe in either place. Movements of capital and money have taken place from Paris to London, when the rate has been materially higher at the latter point, but have not been followed by a rise in the discount rate at Paris, because of the small effect produced upon the economic system of France. The London market is the most sensitive of the markets of the world, partly because it is the centre of international transactions and partly because the English people, under the present organization of their banking system, have preferred to submit to frequent changes in the discount rate rather than to invest a larger part of their surplus capital in an idle reserve of gold.

BOOK III

THE EVOLUTION OF MONETARY SYSTEMS

BOOK III

I

TYPES OF CURRENCY SYSTEMS

Seven principal forms of metallic and paper money—Significance of the single metallic standard—The scientific meaning of bimetallism—The "ratio" between gold and silver—Development of the gold exchange standard—Redeemable government paper—Defects of such paper when irredeemable—Character of modern bank-note issues—How these systems are combined in various ways in modern civilized states.

AN almost infinite variety of systems of currency has gradually grown up under the influence of local conditions in different nations. There are, however, certain general principles underlying these systems which divide them into a few clearly marked types. These types may be thus described:

1. The single metallic standard.
2. The bimetallic standard.
3. The gold exchange standard.
4. Redeemable government paper.
5. Irredeemable government paper.
6. Redeemable bank-note paper.
7. Irredeemable bank-note paper.

I. The monetary standard is the unit of account by which values are measured. The possession by coins of one metal of the function of the sole metallic standard of value implies that those coins are the recognized means of measuring values and discharging debts. This quality of

measuring values may be conferred by custom, as in California during the Civil War, when, by general agreement of the mercantile community, gold coin was treated as the standard, in disregard of federal laws making irredeemable paper a legal means of discharging debt; but it is a quality which is usually derived from law and then conforms to the definition of Leroy-Beaulieu:[1]

"The government chooses a single metal as the sole and permanent basis of its monetary system and confers upon this metal the power to discharge debts in payments of any amount, admitting other metals only as partial money capable of employment in payments only to a certain amount, or as optional money, which may be received as a convenience without being obligatory."

The latter system—of optional forms of payment, without fixed legal relation between different moneys—is not usual in modern civilized states, because of its inconvenience. It prevailed more or less in the trading cities of the Middle Ages, where the national coinage was limited and many varieties of foreign coins were in use; but the absence of a definite legal standard caused much inconvenience and afforded greater benefits to the money-changer than to the merchant. Under such conditions there is a tendency on the part of the mercantile community, for the purpose of self-protection, to select some one coin as the standard and quote others in terms of the standard.

The important point in regard to the standard metal is not that it is used necessarily in large amounts in actual circulation, but that it measures the value of the other forms of the circulation. A currency consisting only of the standard metal must inevitably be made up of coins

[1] *Traité d'Économie Politique*, III., p. 171. Leroy-Beaulieu insists that this system is not properly defined as *monometallism*, because it usually permits the employment of several metals in subordinate capacities and even assures much better than other systems the simultaneous use of these metals.

of the metal; but if these coins are combined in use with other forms of money, the standard coins may be much less in evidence than auxiliary forms. Thus, Great Britain is properly said to be on the gold standard, because values in Great Britain are measured in gold, but the currency in actual use consists largely of silver and paper. The United States are usually said to be on the gold standard, but gold rarely appears in circulation. The state of the silver circulation in the United States is such as to bring their system more properly under the definition of the gold exchange or limping standard, but there is no doubt that gold is the standard by law and the measure of value in fact. In Java, which is also on the limping standard, very little gold currency exists, but values are measured substantially in gold. Thus the standard, in a country of composite forms of money, is not necessarily the only form of currency in use, but is the form to which others are definitely related.

II. Bimetallism, in its proper scientific sense, is that currency system which contemplates the free coinage and concurrent circulation of two metals, either or both of which may be employed without limit in paying debts—which, in other words, possess full legal-tender power. The word itself does not exclude other possible definitions, but, as Walker declares, may mean "something concerning two metals, in conjunction or in some mutual relation to each other." Walker further defines the practical application of the definition to gold and silver in the following terms:[1]

"In ordinary speech, if without qualification or previous explanation, it means either the system of national bimetallism, with free coinage of both metals at the legal ratio, such as existed in the United States from 1792 to 1873, in France after 1785, and in many other countries at various times; or else, and this more properly, the system of in-

[1] *International Bimetallism*, p. 1.

ternational bimetallism—again with free coinage of the metals, at a ratio common to the contracting nations—such as existed under the Latin Union between 1865 and 1873; such as has been proposed to be constituted between wider groups of nations, in successive international conferences and in a host of treaties, tracts and public addresses."

We shall see hereafter that Walker himself denies, in the case of the United States, that bimetallism was given a fair trial, and we shall have occasion to point out that it was not until very recently that the term bimetallism was understood in its modern sense.[1] But the definition of Walker is of value as showing the position regarding bimetallism taken by one of the ablest and most temperate of its advocates. The definition of bimetallism given by Darwin is that "Bimetallism means any currency system which would establish a right on the part of the debtor to discharge his liabilities at his option in either of the two metals at a ratio fixed by law."[2] This definition is open to criticism in omitting the element of free coinage of both metals, without which bimetallism in its proper sense cannot be said to exist.

The "ratio" to which these definitions refer is the relation of weight at which each metal is coined into pieces of equal value. Thus, the ratio of $15\frac{1}{2}$ to 1, which prevailed for more than a century in France, means that fifteen and a half ounces of silver will coin into the same amount of money as one ounce of gold. The ratio of "sixteen to one," so much discussed in the United States, means that the weight of pure silver in a standard silver dollar is the same as the weight of pure gold which would

[1] Cernuschi, while contending that the bimetallic system dates back to antiquity, declares that "It was on January 9, 1869, at the Economists' dinner in Paris, that, disliking to use the deceptive expression *double etalon* (double standard), I improvised a new one, *monnaie bimetallique*."—*The Bimetallic Par*, p. 5.

[2] *Bimetallism*, p. 5.

coin into sixteen gold dollars. Official coinage laws have fixed these ratios arbitrarily, with more or less regard to the market value of the metals at the time when the ratio was fixed, but without providing any practicable means of changing the official ratio if the market ratio should depart from it.

III. The gold exchange standard is so called because the currency issued under it is exchangeable at a fixed ratio with gold. The gold exchange standard differs from the single metallic standard in the fact that it contemplates the coinage and circulation of little or none of the standard metal, but provides means (chiefly by government control of the coinage) for keeping token coins of cheaper metal at a fixed value in standard money. This system is also sometimes called "the limping standard," because the coins of one metal (as silver) limp along without the privilege of free coinage behind those of the metal which fixes the standard. The term "limping standard" is more frequently applied to the status of those countries which have unconsciously drifted into a coinage system involving the large use of overvalued tokens; while the term "gold exchange standard" is applied to the status of those countries which have adopted gold as their standard but have consciously and deliberately issued token coins of silver for current use, adjusted as far as practicable to local requirements and to the reduced value of silver bullion. The most conspicuous examples of the limping standard are France and the other countries of the Latin Union. The history of British India represents a transition from a silver through a limping standard to a definite gold exchange standard in 1899. The gold exchange standard was adopted in the Philippine Islands in 1903, in the republic of Panama in 1904, and in Mexico in 1905.

Under the limping standard it is almost inevitably the case that coins of the metal which is denied the privilege of free coinage are of less intrinsic value than their face

value. They are kept up to their face value for the purposes of money by various devices of law. The most important element in maintaining their value is the fact that the quantity of such coins is limited. A certain quantity of coins is necessary to carry on the business of a commercial country. The limitation of the quantity of coins which can be produced from a given metal, by denying to the individual owner of bullion its free conversion into coins, operates to confer upon the government a monopoly of the supply of such coins. The fact that the coins are constantly needed for carrying on the customary transactions of the community creates a demand which absorbs the supply. Another element in giving stability of value to such coins is the fact that they are received at their face value by the government for public dues. This constitutes a sort of standing offer to treat them as equal to the standard coins and has a powerful influence, where the quantity is not excessive, in keeping them at the value given them by law. Coins of this character cannot be melted down as bullion without loss. This prevents the reduction of the quantity by destruction or by exportation. If such coins are exported, and are treated in foreign countries as equal to their face value in the standard metal, it is only because they can be returned to the country where they are issued and there exchanged for goods, or for the standard metal, at their face value. Under such conditions, they constitute essentially metallic bills of exchange upon the country by which they are issued rather than a part of the world's standard money.

IV. Redeemable government paper money is a form of promissory note issued by governments in even denominations, promising to pay certain amounts of the standard metal on demand. Such money is usually made by law a tender for debt which the creditor must accept at its face value. Where redemption in standard metal for the full amount of the notes is maintained without question, a limited amount of such paper has sometimes

been kept in circulation without serious disturbance to the monetary system. There have, however, been few cases of the successful issue and continued use of redeemable government paper money, because such issues have usually been resorted to by governments which were in difficulties and which desired to make a forced loan from the public instead of a voluntary loan, such as could be made by the issue of interest-bearing bonds or similar securities.

Government paper money cannot easily be regulated in quantity in accordance with business demands. Attempts at such regulation must be more or less artificial, because government paper is not issued in response to pressure for credit in the money market, as bank-notes are, but is issued to meet the needs of the state or at the judgment of some official. If the quantity becomes excessive it cannot be exported like money of standard metal. If it is redeemable in the standard metal and the quantity becomes excessive, by reason either of an increase in the quantity of paper or a decline in the volume of business, there is always danger that demands for redemption will impose a heavy burden upon government reserves of metal. The government is subjected to much greater difficulty than a bank in maintaining the redeemability of such money, because the bank has means for calling in its money, reducing the amount which it lends to the public, and thereby curing the excess in circulation without losing the entire amount of the excess from its reserves.

V. Irredeemable government paper money consists of paper promises to pay the standard metal, which are not kept, or of printed declarations of certain units of value. Such money almost invariably falls much below the value which it purports to represent. When this occurs it is said to "depreciate" or to be depreciated paper. The fact of depreciation is sometimes partly obscured by reversing the proposition and declaring that the standard metal has "appreciated" or is "at a premium." For convenience

in conducting retail transactions, where depreciated paper has been made legal tender or has otherwise become the money of current use, such transactions at home are usually expressed in the paper, which is treated, for the time being, as the standard. This results in much confusion of thought among the ignorant, although the well-informed are aware that it is the paper which has depreciated from the standard in coin and not the coin which has changed its essential value. Foreign money markets, moreover, rarely take note of this device, but by quoting the "gold premium" on exchanges apply the rigid test of the relation of the paper currency to the gold currency of the world.

Irredeemable paper is governed in its value to some extent by the quantity in use, as in the case of redeemable paper, but it is influenced by other causes, among which the most influential is usually the degree of discredit attaching to the government which issues it and the degree of probability that the paper will at some future time be redeemed in coin of the standard.[1] In many countries which have issued such depreciated paper in large quantities, it has been thought best, when the paper has been restored to a fixed metallic value, to adopt a new unit of coinage corresponding to the metallic value of the paper at the time when redemption is established. This system results in repudiation of a part of the original promise to pay standard metal in full for the paper, but is defensible to some extent upon the ground that it con-

[1] Thus, in regard to the depreciation of the notes issued by the United States during the Civil War, it was declared by Mitchell: "This depreciation, slight at first, increased steadily, with favorable reactions when Federal victories seemed to promise an early end to the war. The maximum monthly average was reached in July, 1864, when a dollar note sold for 38.7 cents in gold. After that month the value of the greenbacks gradually rose, under the stimulus of military success, until a month after the surrender of Lee a dollar in currency was worth nearly 74 cents in gold."—*Journal of Political Economy* (March, 1897), V., p. 125.

forms to conditions as they exist when convertibility between coin and paper is restored, instead of changing the relations of contracts and prices as they then stand.

VI. Redeemable bank-notes are the printed promises of a bank to pay coin of the standard metal on demand to the full face value of the notes. Where such promises are scrupulously fulfilled, without cost or difficulty for the holder of the notes, and with ample provision for the full payment of the notes in case of failure of the bank, the redeemable bank-note constitutes the most effective auxiliary to coins of the standard metal for carrying on business. It is a form of credit by which the use of coin is economized in the same manner as by the use of checks, deposit accounts, and clearing-house settlements. It is not necessary that redeemable bank-notes should be legal tender for debt, because they will always be acceptable for debts where complete confidence prevails that the promise made by the note will be kept.

The issue of redeemable bank-notes has been restricted in most European countries by recent laws to a single institution with large capital, like the Bank of France, the Imperial Bank of Germany, the Bank of England, the Bank of Russia, and the Austro-Hungarian Bank; but the power of issue is distributed among a plurality of smaller institutions in Scotland, Switzerland, Canada, and the United States. The large central banks are more or less under the influence of the state, and in several cases the governor of the bank is appointed by the government; but these banks are not owned by the government except in the case of the Bank of Russia. They are like other joint-stock companies in their relations with their shareholders and with the business community, except for unusual cases of interference.

VII. Irredeemable bank-notes are promises issued by a bank to pay standard coin on demand, but which are not redeemed in accordance with the promise. Such notes

have most of the defects of irredeemable government paper, but if they are not legal tender for debt they do not inflict the same injustice upon persons who have made contracts expressed in standard coin, because such contracts cannot be lawfully discharged in depreciated notes. Experience has shown that irredeemable bank-notes do not usually decline in value so much as irredeemable government notes, because the quantity is subject to some degree of regulation by the bank by which they are issued. In most cases, moreover, where bank-notes have become irredeemable by inability of the banks to pay them in coin, the government has enforced a return to payment in coin within a shorter time than where government notes have been issued. The government has less interest in permitting the continued issue of promises which are not redeemed by the bank than in the issue of its own promises of the same character, and the public have little or no interest in continuing privileges to banks which fail to redeem their promises.

Of these various currency systems there is hardly any country where transactions are carried on by one alone, without the aid of one or more of the other systems as auxiliaries. In most countries not less than two forms of currency, and in many countries a great many combinations and variations of the seven classes which have been enumerated, are employed in monetary dealings.

The ideal currency system, from the stand-point of most scientific students of the subject, is that which combines the single metallic standard with the issue of convertible bank-notes. Under such a system, where the standard metal is coined freely and without charge, or with only a nominal charge, upon deposit of bullion at the mints by any holder of it, the metallic money of the country is responsive to the influences of the demand for standard metal throughout the world. The money of the standard metal comes and goes according to the state of prices and rates of interest for capital. If gold is the standard, these

influences operate upon the demand for a medium of exchange, and particularly upon the foreign exchanges, in such a way as to bring gold into the country when it is scarce in relation to the gold stock in other countries, and send gold out of the country when it becomes excessive in relation to the stock of the world. When the stock of gold is deficient, rates of interest rise and this attracts gold from other countries. If the supply is so great as to bring rates down below those in other countries, other things being equal, the rate of interest falls and it becomes profitable to send gold out of the country. Thus, a country having a currency consisting of nothing but a single metal finds its currency governed by an almost automatic law, without intervention of the authority of the state and by the simple play of the self-interest of the mercantile classes in all countries having the same metallic standard.

A monetary system which is based upon a single metallic standard, with free coinage of the standard metal, conforms most nearly to the condition that money shall always be equal in intrinsic value to its exchange value. In other words, the metal in a new coin, fresh from the mints, melts up into an amount of the metal equal in market value to the face value of the coin. Such a coinage enters readily into the system of international trade, because the coins of one country can be melted up and recoined into those of another without loss. Exports and imports of the standard metal, whether in coin or bullion, are not hampered by any loss upon the conversion of one coin into another.

The use of convertible bank-notes affords an economy in the use of the standard metal of the same character as the economy provided by other forms of credit. It affords a convenient tool of trade, meeting all the purposes of currency, without requiring the heavy investment required in a currency of the standard metal. The coins of the standard metal and the notes redeemable in the standard co-operate with each other to meet legitimate de-

mands for currency in the most economical and efficient manner and to put a restraint upon undue expansion of the volume of money in circulation. The fact that the notes must be redeemed on demand in standard coins prevents their issue in excessive amounts, because in such case they come back rapidly for redemption and the issuing bank is compelled to take measures to obtain coin to replace its diminishing stock and to continue the redemption of its notes. Under the operation of such a system, the volume of metallic money and the volume of paper currency adjust themselves automatically to the needs of trade.

A system of free coinage of the standard metal with the employment of convertible bank-notes is substantially the system of England, Germany, Russia, Australia, and Egypt. The last two countries named come nearer than almost any others in the world to the employment of a currency consisting simply of the standard metal.[1] The large production of gold in Australia causes the general use of gold coin and has prevented the introduction of bank-notes in a large ratio to the metallic currency. In Egypt the limited field within which bank-notes are employed, owing to the lack of extension of the credit system, causes the circulation to consist chiefly of gold. In England, Germany, and Russia gold coin is the standard of value and is in general circulation, but convertible bank-notes are also largely used.

In nearly all countries the currency system, even where consisting essentially of a single metallic standard and convertible notes, contains two other classes of coins—subsidiary silver coins and minor coins of copper or some other metal. These coins almost invariably contain metal

[1] In Australasia gold constitutes $22.96 *per capita* in a circulation of $24.05; but the gold is partly represented in actual use by bank-notes. In Egypt gold constitutes $3.06 *per capita* in a circulation of $3.71.—Report of the Director of the U. S. Mint, 1904, p. 43

of less value as bullion than the nominal value of the coins. If the coins contained metal of greater value as bullion than their nominal value, they would be melted up as bullion and the country would be deprived of its small money. These subsidiary and minor coins are now issued in civilized countries from purchases of bullion on its own account by the government, which is thus enabled to keep the quantity within such limits as it thinks proper. Such limitation of the quantity to the amount actually needed in retail transactions keeps the coins at their face value independently of the value of the bullion which they contain.

The minor token coins usually play no part in determining the monetary standard of the country, because they are not legal tender for unlimited amounts. In the United States they are redeemable by the government in legal-tender money and can themselves be tendered for debts between individuals only to the maximum amount of ten dollars in the case of subsidiary silver and twenty-five cents in the case of minor coins.[1] Like provisions in other countries also reduce these coins to a subordinate position in the currency system and deprive them of any influence upon the standard of value. They are a form of credit currency which would be dangerous if abused, but within proper limits forms a safe and convenient auxiliary to standard coins and redeemable bank-notes.

The limping standard is not so simple and scientific as the single metallic standard with convertible bank-notes; but it has been an historical evolution in countries where bimetallism has broken down. In those countries, which include the United States, France, Belgium, Italy, and Switzerland, it has been found necessary, while leaving the mints open to the free coinage of gold, to close them to the free coinage of silver. When this suspension of free coinage occurred, large amounts of coins of both metals were in

[1] Revised Statutes, §§ 3529 and 3587; Act of June 9, 1879, § 2.

circulation. It has not been profitable to retire the coins of the cheaper, because they would be worth less as bullion than as coin.

A still further complication in the currency in actual use is introduced where government paper money circulates alongside of coins and convertible notes. Government paper usually tends to drive from circulation all other forms of money in the fields which it seeks to enter. This is true to some extent even where the paper is convertible and is more nearly certain to be the case where the paper is inconvertible. In the latter case especially, if the paper is legal tender, it brings into operation the economic tendency known as "Gresham's law." This law is so called because it was first clearly set forth by Sir Thomas Gresham, the master of the English mint, about 1559. It is, in brief, "that bad money drives out good." Reduced to scientific terms, it is a result of the law of marginal utility. When the holder of a doubtful promise to pay gold and a piece of gold, nominally expressing the same amounts, finds that the paper can be used to pay debts to the same amount as the gold, while the gold can be sold at a higher paper price to the bullion broker, he naturally employs the paper in making purchases and paying debts and withdraws the gold to sell it in the bullion market. The paper has the higher utility to the holder in exchange for commodities, while the gold has the higher utility for him as merchandise at the bullion broker's. Under such conditions the law of marginal utility will lead the holder of money to substitute the cheaper for the more costly instrument which will perform the same service.[1] This process of substitution will result in the use

[1] Thus, Simon Newcomb says, "We always prefer for any purpose the cheapest article which will answer that purpose, unless some evil to the person using it attends its use. . . . If there was a community which had to make silver axes because it had no steel, we should find that when that community began to trade with the rest of the world, the silver axes would entirely disappear and be

of the cheapest form of currency which will do a given work, because the more costly can be otherwise employed at a profit. Even when paper and gold circulate at par with each other, the paper will be employed for most transactions, both because it is a cheaper form of currency, in requiring a smaller investment of capital, and because it can be transmitted with greater convenience and at lower charges for carriage. Gresham's law will, therefore, result in the substitution of a paper for a gold currency in most cases in all the denominations where paper is permitted. This fact affords the economic justification for two important practical regulations of modern banking—the limitation of the minimum denomination of bank-notes and the requirement of definite metallic reserves. Both these regulations are justified by the necessity for maintaining a safe metallic basis for the currency, which might be neglected if the struggle of individual issuers for the greatest economy in the tools of exchange were left unhampered.

Most of the European countries have a currency made up of gold coin as the standard, silver and minor coins which are tokens, and redeemable bank-notes. The currency systems of Great Britain, Germany, Russia, and Canada, in spite of unnecessary restrictions on notes in the first two, conform most nearly to the ideal system in some respects, because they have in use the largest proportion of gold coins, and bank-notes issued in those countries are redeemable in gold on demand. The redemption of bank-notes in gold has been suspended for some time in Italy, Austria-Hungary, Spain, and Greece, but Italy and Austria-Hungary have recently taken steps to restore gold payments.

The forms of money in use in the United States afford an example of nearly every system, because the existing

replaced by iron or steel ones. The case is exactly the same when gold is replaced by paper."—*Principles of Political Economy*, p. 414.

currency has been a gradual growth out of complex historical and economic conditions. Not less than eight kinds of money form parts of the active circulation, but they fall into four of the types into which currency systems are here divided—coins of the standard metal, token coins, redeemable government paper, and redeemable bank paper. Gold coin is the standard and exists in large quantities in the country, but most of it is in the bank reserves and in the Treasury and is not in general use. Standard silver dollars to the amount of more than $500,000,000 are now a part of the token currency, along with subsidiary silver pieces of smaller denominations, whose amount in 1905 was about $115,000,000. The minor coins of nickel and bronze fall under the same classification as token coins, which derive their value from limitation of the quantity and willingness of the government to receive them at par.

A large part of the currency of the United States falls, in a sense, under the classification of government paper money. There are four forms of this paper.[1] Two of them, however, are not government paper money in the scientific sense and are not subject to the principal criticisms usually pronounced upon such money. They are simply receipts or certificates given to the owners of coin that such coin has been received and is held for them in trust. They are known as gold certificates and silver certificates. The gold certificates are not paper money in the usual sense, because they represent gold coin of full value instead of promises to pay which there may not be the ability to fulfil. They are issued to save the wear and tear attendant upon the transfer of gold, especially in the dealings carried on daily between the New York

[1] Thus the total circulation on June 1, 1905, was $2,584,670,716, of which these four forms of paper were represented by: gold certificates, $482,910,999; silver certificates, $460,462,103; United States notes, $332,284,693; treasury notes of 1890, $9,583,291; or a total of about $1,285,000,000.

banks and the Sub-Treasury of the United States. Of the payments for customs duties made to the Treasury at New York during the fiscal year 1902, $155,369,917 was paid in gold, and nearly all in gold certificates, out of total payments of $165,443,740.[1]

The issue of silver certificates was authorized when the purchase of silver bullion for coinage into standard silver dollars was determined upon by Congress in 1878. It was plainly provided that "the coin deposited for, or representing the certificates, shall be retained in the Treasury for the payment of the same on demand."[2] These certificates do not represent redeemable government paper in the ideal sense, because they are redeemable in token coins and not in coin of the standard metal. They are received, however, for debts to the government at their face value in gold, which tends to prevent their depreciation and that of the coins which they represent. This fact led to their payment in large amounts for customs dues during the crisis of 1893, while the gold which had usually been paid was retained by banks and individuals as having a more assured value.

The typical government paper money of the United States consists of what are called "United States notes" or "greenbacks." These were first authorized in 1862 and their issue rose to a maximum (January 3, 1864) of $449,338,902.[3] No attempt was made to treat them as redeemable notes at the time of their issue, and their value fell greatly in gold during the Civil War, but began to rise after the war closed and when some steps were taken to reduce the amount and to accumulate a gold reserve for their redemption. They became redeemable in gold on January 1, 1879, and a few days before that date the premium on gold in New York disappeared and the gold room on the Stock Exchange was closed. The

[1] Treasurer's Report, 1902, p. 26.
[2] Act of February 28, 1878, § 3.
[3] Knox, *United States Notes*, p. 139.

tendency towards the contraction of the currency in 1878 led Congress to intervene to check the retirement of the notes and to direct that the secretary of the Treasury should thereafter pay out and reissue all which were received. The secretary was necessarily compelled to obey this mandate from the moment it took effect, when the volume of notes outstanding happened to represent the uneven sum of $346,681,016. For a quarter of a century the volume of government paper money nominally outstanding has remained fixed at this amount. A part of it is usually in the Treasury, but is held there as the equivalent of coin and is paid out for current cash obligations, instead of being cancelled and withdrawn from use, as is the case with redeemable bank-notes.

The other form of government paper still in circulation in the United States was authorized in 1890, when the government decided to increase its purchases and coinage of silver. Notes were then issued, called treasury notes, to the exact amount of the silver bullion purchased for coinage. They differed from silver certificates in the fact that they were redeemable at the discretion of the secretary of the Treasury in either gold or silver coin. It was decided by Congress to withdraw these notes when the gold standard was strengthened in 1900, and it was directed that whenever afterwards received they should be redeemed in silver dollars and retired. They will gradually disappear from circulation, therefore, and reduce the number of forms of money in use in the United States to seven. The total amount of treasury notes issued in payment for silver bullion was $155,931,002; the amount outstanding June 30, 1905, had fallen to $9,413,000.

The other form of money employed in the United States consists of redeemable bank-notes. These notes, known as national bank-notes, differ in character from those issued in most countries in being based upon deposits of government bonds in the public Treasury instead of on the commercial assets of the banks. This makes them less

responsive to business conditions than the bank-note issues of other countries, but they have enjoyed since 1879 a considerable advantage over irredeemable bank-notes, which have proved so injurious to the finances of Italy, Spain, and Greece. National bank-notes are redeemable in lawful money instead of being specifically redeemable in coin, as sound monetary principles require. This makes little difference so long as the paper money of the government remains limited in amount and is redeemed in standard coin, but would reduce the notes to the level of government issues if the government should again issue irredeemable paper. This was in fact the status of national bank-notes from the time of their issue in 1864 to the resumption of specie payments by the government in 1879. All forms of money issued in the United States since that date have been kept equal to gold, although gold has formed only a fraction of the money in use.

II

THE FAILURE OF LOCAL BIMETALLISM

Its relation to the introduction of the gold standard—The French legislation of 1803, making the franc the coinage unit—Ebb and flow of gold across the French frontier under changing relations in the bullion market—Formation of the Latin Union to guard against the rise of silver—Change of conditions about 1873—Policy of the United States regarding the standard—The legislation of 1873 and the Bland and Sherman acts.

IN logical order, discussion of the single metallic standard should precede discussion of the double or bimetallic standard; but historically the floundering of the nations through various forms of bimetallism (often not distinctly recognized as such) preceded their emergence, in the closing generation of the nineteenth century, upon the firm ground of the single gold standard, definitely recognized and scientifically guarded. As the failure of the earlier experiments preceded in time the evolution of the gold standard, and throws much light upon that evolution, and the latter brought in its turn difficulties in trade relations with silver-using countries, which caused a temporary reaction in certain sections of scientific thought towards the theory of bimetallism, the historical order, rather than the logical order, will be followed in some degree in dealing with these developments.

Bimetallism has found scientific defenders upon the ground that it affords distinct advantages as a monetary system over monometallism. Few have denied that it would have such advantages if the ratio fixed by law between the two metals could be maintained in the bullion

market. Upon this point the contention of the advocates of bimetallism was thus set forth with clearness and precision by the British Gold and Silver Commission:[1]

"If the possessor of any quantity of silver could, by taking it to the mints, have it converted into coins available as legal tender at a fixed ratio with gold, he would never part with it except at a gold price closely approximating to the value represented by that ratio. The variations in the gold price of silver would, therefore, be scarcely appreciable."

Whether this statement is supported by facts and sound reasoning is the crux of the dispute regarding the practicability of bimetallism. Two questions are raised by the position of the bimetallists:

(1) Whether the adoption of a bimetallic coinage system would modify the relations of value which would otherwise exist between gold and silver.

(2) Whether, if such modifying influence is granted, it would be of such a character as to give absolute fixity to the relationship between the two metals?

Towards a correct solution of these questions it will be necessary to consider such historical facts as are available and afterwards the reasoning based upon these facts and upon abstract theory.

The most conspicuous test of the system of keeping gold and silver in circulation side by side was made in France from 1803 to 1873. The legal ratio between the two metals was fixed in 1785, upon recommendation of Calonne, minister of finance, at $15\frac{1}{2}$ to 1. In 1785 free coinage of gold was not established in France, but such old gold coin as was then in circulation was recoined at the new valuation. It was in 1803, when the administrative and financial system of France was being reorganized by Napoleon, that the French bimetallic system, so-called, was adopted. The ratio of $15\frac{1}{2}$ to 1, chosen by Calonne,

[1] Senate Misc. Doc. No. 34, 50th Congress, 2d Session, p. 60.

was then retained, and provision was made for the coinage of both metals. The French law, however, was not so clearly a bimetallic law as some of the advocates of the system in modern times have maintained. Gaudin, the minister of finance, did not apparently have any inkling of modern bimetallic theories, that opening the mints to both metals would tend to maintain their relative value by affording an unlimited outlet for the cheaper metal when the dearer ceased to be offered for coinage. He adopted a ratio which was nearly the market ratio of silver and gold, but which slightly undervalued gold and would therefore tend to make silver the standard in use and keep gold out of circulation. The new law, moreover, by no means adopted consciously the bimetallic system in the sense in which it is now generally understood. The law simply declared:

"Five grams of silver, nine-tenths fine, constitute the monetary unit, which retains the name of franc."

The unit of the French monetary system, therefore, was a silver coin. It was simply provided that gold was to be coined in twenty and forty-franc pieces at the fixed ratio of $15\frac{1}{2}$ to 1. Gaudin had heard so little of the modern bimetallic theory that his first project contained an explicit recognition of the probability that the rating of gold to silver might require to be altered from time to time; but this was stricken from the plan in the course of discussion.[1]

These facts are important, not as weakening the force of abstract arguments for bimetallism, but as tending to show from the actual record of events that bimetallism hardly existed even as an abstract conception among the statesmen of 1803. If true bimetallism resulted from the operation of the French coinage law, it was the result of the evolution of events, and this would be in some senses a

[1] Walker, *International Bimetallism*, p. 88. A provision of this character was preserved in the Belgian Law of 1832.—*Vide* Ansiaux, *La Question Monétaire en Belgique*, p. 8.

more important evidence than academic theories of the utility of such a system, by showing its adaptation to actual conditions. We shall see, however, that the plan of 1803, although adopted in Belgium in 1832 and later by Switzerland, Italy, and Greece, did not maintain among the money-changers the concurrent estimation of gold and silver at the valuation given by law. On the contrary gold flowed into the country and came to the mints when gold was worth less than the mint rate in relation to silver; gold flowed out of the country and was not brought to the mints when it was worth more than the mint rate in relation to silver.

Examination of the coinage and the foreign trade statistics will illustrate these tendencies. From 1803 to 1848 the circulation of France was almost entirely of silver. From 1795 to 1847 gold formed 22.9 per cent. of the coinage of the two metals, silver 77.1. From 1830 to 1848 gold was only 10.9 per cent. and silver was 89.1.[1] The movement of foreign trade showed that up to 1837, so far as the figures are available, there was a slight excess in exports of gold over imports, while the net imports of silver amounted to 1,032,000,000 francs ($200,000,000). It cannot be assumed, however, that the absence of heavy net exports of gold from France indicates the continuance of the use of gold as currency. France was not a gold-producing country and it is not an unreasonable assumption that for thirty-five years her consumption of gold by jewelers and by other artisans equalled 10,000,000 francs a year or 350,000,000 francs ($69,000,000) in thirty-five years.[2] Obviously such a use of gold made a material deduction from the stock in use as currency.

The question whether gold disappeared from circulation in France during the period ending with the great gold

[1] Willis, p. 5.

[2] "There is, furthermore, reason to believe that the exports of gold consisted chiefly of coin, while the imports of gold were largely of bullion."—Willis, p. 4.

discoveries about 1850, and thereby demonstrated the breakdown of the bimetallic system, has been warmly debated, but it appears to be largely a question of opinion as to what constituted a gold circulation. Walker endeavors to show that "although silver was being imported to an enormous extent, because overvalued in the coinage, gold still remained money in France in appreciable quantities."[1] Whether "appreciable quantities" remained or not seems to be somewhat apart from the question whether concurrent circulation was successfully maintained. It was declared by a French official report in 1872 that up to 1850 "silver was our sole monetary circulation." Another report, made in 1869, quoted Gaudin as estimating that in 1803 one-third of the metallic circulation of France was of gold, but declared that in 1848 almost all of this gold had disappeared and out of 53,000,000 francs then possessed by the Bank of France only 1,000,000 francs was in the yellow metal. It was customary in those times that "when one was paid even so small a sum as 1,000 francs, he received this bulky and heavy money in a canvas bag and had to hire a porter or a cab to carry it home."[2]

Whatever happened in France prior to the gold discoveries of 1848, there is little dispute as to what occurred afterwards. Gold, by reason of the large amount produced in California and Australia, fell below silver in value at the French coinage ratio and began to pour into the French mints in a golden torrent. Silver ceased to reach the mints, and was largely exported, but at a rate which did not entirely offset the influx of gold. This was due to the fact that the increase in the world's supply of metallic money permitted a larger distributive share to fall to France. Much more than the net increase was in gold. The contrast between the amount of coinage of gold and silver at the French mints before and after the

[1] *International Bimetallism*, p. 126.

[2] Report of U. S. Monetary Commission of 1876, p. 146.

opening of the California mines is thus graphically presented by Arnauné:[1]

Period	*Average commercial ratio*	*Gold coined, francs*	*Silver coined, francs*
1821–1850...	15.76	453,174,270	3,190,913,437
1851–1870...	15.44	6,436,080,610	528,138,619

Thus, with a change of little more than two per cent. in the average ratio of the two periods, the percentage of gold coinage changed from about one in eight parts of value to about twelve parts in thirteen. The experience of France under this avalanche of gold is one of the arguments most dwelt upon by bimetallists to prove the value of a double or bimetallic standard. They maintain that if the French mints had not been thrown open to gold, and the laws of France had made silver the sole legal tender, the new gold would have been pent up in the old gold countries, would have produced by its increase of volume a disturbing rise of prices, and would have cheapened the yellow metal to a point which would have carried it far below the ratio of $15\frac{1}{2}$ to 1.

It is certain, however, that under actual conditions the bimetallic law failed to keep gold and silver together. Before the discovery of the Californian mines gold was at a premium in silver, sometimes as high as three per cent.[2] After 1848 silver was at a premium in gold, sometimes as high as four per cent., with the result that the bullion brokers were kept constantly employed and that in six years (1852–57) the exportation of silver exceeded the importation by 1,127,000,000 francs ($217,500,000),

[1] *La Monnaie, le Crédit, et le Change*, p. 172.

[2] Cauwès, II., p. 189. Even Lord Aldenham declares: "I remember myself, when I was travelling through France in 1841, I paid some very insignificant agio to the Paris banker for giving me gold instead of five-franc pieces. The agio is only concerned with export of bullion, coined or uncoined, whether in the course of trade or for the convenience of travellers."—*A Colloquy on Currency*, p. 63.

which was about two-fifths of the original stock of silver in France.[1]

The outlet afforded by France for the new gold undoubtedly contributed to widen the circle of demand for the metal and thereby to maintain its value. The effect of the depreciation which would have fallen upon gold without the French mint laws, however, and the disturbing effects upon values and prices which were actually felt, were greatly exaggerated at the time and have been greatly exaggerated since. Chevalier, although fully cognizant of the French bimetallic law, anticipated that the new gold would raise prices by fifty per cent., and Jevons estimated a rise of thirty per cent., by the simple operation of the increase in the quantity of money in relation to commodities.[2] Nothing of the kind occurred or probably would have occurred even if the French monetary laws had been different.

The essential weakness of the reasoning of Jevons was that he ignored the operation of one of those economic principles of which he was himself a leading exponent—the law of marginal utility, or the natural selection by men of the most efficient and economical tools for accomplishing the maximum of results. Gold was generally recognized before the discoveries of 1848 as the most efficient money of modern commerce. It was relatively scarce, however, and therefore difficult to obtain except at a high price in other capital. This being the case, even wealthy nations hesitated to adopt gold as their sole standard. When gold became relatively plentiful, a de-

[1] Chevalier, *On the Probable Fall in the Value of Gold*, p. 48. Chevalier declares that "From the moment that numbers of persons devote their time and capital to the carrying out of this substitution, we must conclude that it is a profitable trade, for, if the relation of 1 to 15½ were not advantageous for the holders of gold, they would take good care not to carry on the operation upon the large scale on which they have proceeded."

[2] *Investigations in Currency and Finance*, p. 74.

mand which had before been ineffective because of the high price of gold, and had been simply lying in wait for a fall in its price, came into play to meet the increased supply. A desire which had not reached the character of an effective demand and could, therefore, according to economic reasoning, be ignored, thus became an effective demand. It is plain, therefore, why France absorbed more gold than she exported silver. She needed a larger medium of exchange, especially in her rural districts, to meet the expansion of commerce which was beginning with the development of new means of production and transportation.[1]

In Switzerland the attempt to adopt the French silver system, which was made by the law of 1850, was defeated by the fall in the value of gold. French gold coins flooded the country, the silver five-franc pieces first disappeared, and the subsidiary pieces of one and two francs began to follow them. Switzerland by a law of 1860 saved her subsidiary circulation by reducing it from the fineness of nine-tenths to eight-tenths. These coins were introduced across the French frontier as substitutes for the French coins, which, by reason of their greater fineness, were melted up and sold as bullion.[2] Italy adopted the French system of coinage, but with subsidiary coins of the fineness of 0.835, by the law of August 24, 1862, and got into circulation more than 100,000,000 francs in the new pieces while France hesitated.[3] At length, so manifold were the difficulties caused by the undervaluation of silver in all the countries where the French decimal system prevailed, that an international conference was summoned, on the motion of Belgium, for considering some

[1] Jevons notes the influence of "the *extension* of the currency of the world, caused by the spread of commerce," but expresses the opinion that "most writers have over-estimated the consumption of gold" due to this cause.—*Investigations in Currency and Finance*, p. 69. [2] Laughlin, *Bimetallism in the United States*, p. 147.
[3] Willis, p. 38.

method of arresting the loss of silver. This conference, held during the autumn of 1865, resulted in the convention known as the Latin Union. The parties to the union were France, Belgium, Italy, and Switzerland. Greece soon signified her adhesion to the convention, and the coinage system of Spain after 1868 was modelled on the French system, although Spain did not become a member of the Union.

The essential result of the conference was to reduce the metal in the subsidiary silver coins of the countries of the Union to a point which would carry them below their face value in gold and prevent their exportation. The formation of the Latin Union was, in the language of Shaw, "a measure of defense against the action of the bimetallic system in those countries which had adopted the monetary system of France, and lay exposed to all its disastrous fluctuations."[1] The idea has grown up among careless observers that the Latin Union was a convention for the promotion of bimetallism and a common coinage system among the countries taking part. The fact was substantially the opposite. The countries which took part had already adopted the French monetary system and the conference was called for the purpose of guarding against the difficulties which had developed under its operation. The convention of the Latin Union practically adopted gold as the standard of the countries taking part. The mints were left open to the free coinage of both metals, but silver was too much undervalued at the coinage ratio to be presented for coinage. It was not then anticipated that this condition would change. In order to avert the melting down of the subsidiary silver, the fineness of the coins was reduced from nine-tenths to 0.835, and in order to prevent excessive coinage the quota for each country was fixed at six francs ($1.158) per head.

The conditions which attended the formation of the

[1] *History of Currency*, p. 120.

Latin Union in 1865 changed radically within the next three years. The production of silver throughout the world in proportion to gold greatly increased, the output of gold slackened, and silver fell to a bullion value in 1867 of 15.57 to 1. This made it more profitable to present silver to the mints for coinage than gold and changed entirely the nature of the problem confronting the countries of the Union. Then came the war with Germany, which greatly impaired the financial as well as military prestige of France, and the adoption by Germany in 1871 of the gold standard, followed in 1872 by the monetary treaty between Norway and Sweden and Denmark, establishing gold as their monetary standard. The current of gold which had flooded the French mints dried up and the channel was refilled by silver from the American mines. The coinage of silver at the French mints, which had been practically nothing for a dozen years, rose to 129,445,268 francs in 1868 and to 156,270,160 francs in 1873. The mint of Belgium was besieged by the owners of silver bullion and 111,000,000 francs in five-franc pieces were coined in 1873. Even in Italy, although the country was on a paper basis, it was found profitable to present silver for coinage to the amount of 42,000,000 lire.

Action was urgently required to avert the flight of French gold and the descent of the country to a single silver standard. The French mint took the first step by extending the time within which silver coins were delivered to the depositor of the bullion from which they were to be coined. The usual term of these receipts, which had been ten days, was extended from time to time, until in 1874 the period reached nine months.[1] More drastic measures than mint regulations were required, however, to effectively check the flood of silver and save France from silver monometallism. The convention of the Latin Union was called together annually for the four years be-

[1] Walker, *International Bimetallism*, p. 172.

ginning with 1873, the free coinage of five-franc pieces was suspended, and the maximum coinage to be allowed for each country was fixed by agreement.[1] Finally, in 1878, the free coinage of five-franc pieces was absolutely suspended, and the issue of the token coins of silver was strictly limited by various conventions of the states of the Union. The five-franc pieces already coined remained legal tender without limit; but gold was henceforth the standard. The silver coins were kept at par with the standard, in spite of the steady downward course of their bullion value, by limitation of their quantity and the fact that they were received at par for public dues.

The experiment of bimetallism in France was thus abandoned after partial enforcement for seventy years, by the deliberate closure of the mints to silver. In the United States also, at nearly the same date, the free coinage of silver ceased to be lawful, under conditions which have been the subject of prolonged and bitter controversy. The monetary system created by Hamilton in 1792 established the ratio of 15 to 1 between silver and gold. The mint was open to the free coinage of both metals, and it has been contended by many American bimetallists that the system of 1792 established bimetallism in the United States. Upon this point, however, so intelligent and careful a bimetallist as Walker declares:[2]

"A fair trial of bimetallism, under reasonably favorable conditions, could not possibly, in the nature of the case, have been conducted here. The people of this country, throughout the period under consideration, habitually used so small an amount of either or both of the precious metals, in comparison with other nations, and in comparison with the stock of these metals throughout the

[1] Absolute suspension might have been decreed but for the desire of Italy, which was on a paper basis, to hold silver in her bank reserves.—*Vide* Willis, p. 134, *et seq.*

[2] *International Bimetallism*, p. 112.

world, that a bimetallic law here instituted could not have afforded a fair trial of bimetallism."

Walker further declares that "The manner in which bimetallism was put into operation here, by the act of 1792, on the one hand, or by that of 1834, on the other, was such as necessarily to bring about an early failure, even though the principle of bimetallism were admitted to be perfectly sound." He bases this statement partly upon the selection by Hamilton of a ratio which was different from that of France and was different from the market ratio.[1] This ratio, as established by the act of April 2, 1792, was 15 to 1. Gold was undervalued, with the result that little was brought to the mints and much was exported. It had been the intention of Hamilton to establish the double standard, because he did not believe that the United States were rich enough to retain a gold currency. The fall in the value of silver, however, caused it to be used in paying debts and made it practically from 1792 to 1834 the standard of monetary transactions.[2]

A new policy was adopted in the United States by the act of June 28, 1834. This act changed the ratio between gold and silver from 15 to 1 to 16 to 1. This change was accomplished by lowering the weight of the gold eagle from 270 to 258 grains of standard gold.[3] The weight of the silver dollar and the amount of silver which it contained were left unchanged, but the dollar was practically discarded by giving it a lower value at the mint in relation to

[1] *International Bimetallism*, p. 114.

[2] Gouge declared that "gold is, in the spirit of our laws, a subsidiary currency, its value being computed in silver dollars."—*Paper Money and Banking in the United States*, p. 107.

[3] By the act of 1834 the amount of pure gold in the eagle was fixed at 232 grains, or a ratio almost exactly 16 to 1; but by the act of January 13, 1837, the amount of pure gold was raised to 232.2 grains without changing the gross weight of 258 grains, in order to make the fineness exactly nine-tenths. This made the ratio about 15.98 to 1. *Con.* Laughlin, *Bimetallism in the United States*, p. 73.

gold than the value of the bullion which it contained. The change of the ratio from 15 to 1 to 16 to 1 was made with the scarcely concealed purpose of favoring the coinage of gold. The market ratio, it was declared by Thomas H. Benton, was about 1 to 15⅝, and the adoption of a higher mint value for gold would tend to bring it to the mints and keep away silver. There were several political motives for seeking this end.[1] Gold had been discovered in North Carolina; the hostility to the Bank of the United States was cleverly directed against its paper issues and in favor of a gold currency; and President Jackson desired to make the public revenues of coin rather than of bank paper. The act of 1834 was known, while pending, as "The Gold Bill," and the ratio of 16 to 1 was adopted for the purpose of putting the United States on the single gold standard.[2] Its influence was so powerfully felt that in the autumn of 1834 gold began to move towards the United States in such volume that alarm was created for a time in London for the reserves of the Bank of England.

It was after the gold discoveries of 1848 that the most serious difficulties began to be encountered in the United States in retaining silver in circulation. The great increase in the output of gold tended to lower its value in relation to silver and made it profitable to melt up the silver coins and export them. The operation of Gresham's Law under such conditions is well set forth by Laughlin:[3]

"In 1834 an ounce of gold bought about 15.7 ounces of

[1] "The ultimate object proposed to be accomplished by Mr. Calhoun in this process of 'unbanking the banks,' was to arrive eventually, and by slow degrees, at a metallic currency, and the revival of gold. This had been my object, and so declared in the Senate, from the time of the first opposition to the United States Bank."—Benton, *Thirty Years' View*, I., p. 435.

[2] This is admitted by Walker, who declares that the influence of the United States, "instead of being used to sustain bimetallism, was practically exerted against it."—*International Bimetallism*, p. 117.

[3] *Bimetallism in the United States*, p. 76.

silver in the bullion market (but sixteen ounces in the form of coin). In the period we are now considering, however, since gold had fallen in value, one ounce of gold could buy 15.7 ounces no longer, but a less number, which in 1853 was about 15.4 ounces. It will be seen at once that this widened the difference between the mint ratio of 1:16 and the market ratio, and so offered a greater profit to the watchful money brokers. Being able to make legal payment of a debt either in silver or gold, a man having 1,600 ounces of silver could take only 1,540 of them to the bullion market and there buy 100 ounces of gold, which would by law be a legal acquittal of his debt. He would thus gain sixty ounces by paying his debt in gold rather than in silver."

The gold standard was further confirmed and established by the act of February 21, 1853, which was passed to arrest the disappearance of the subsidiary silver coins. No provision was made in this act in regard to the silver dollar, because none had been coined for many years; it was above the gold dollar in bullion value, and it was not then anticipated that silver bullion would ever again be offered at the mints on private account for coinage into dollars. The act of 1853 reduced the number of grains of pure silver in two half-dollars from 371.25 to 345.6 and reduced the standard weight from 412.5 to 384 grains, equivalent to a reduction of 6.91 per cent. The privilege of free coinage of these coins on private account was withdrawn, and their legal-tender power was limited to five dollars. By these provisions the United States definitely adopted the policy of the single standard of gold, with subsidiary token coins of silver, the latter maintained at parity with gold by government control of the output and by the limitation of their legal-tender power.

From 1853 to 1861, therefore, the standard of the United States was gold, so far as it was not impaired by excessive issues of bank paper and by the suspension of cash payments in the crisis of 1857. From 1861 to 1873 the

country was upon a paper basis, in which the specie value of legal-tender money was determined by the quantity in use and the credit of the general government. This paper money, by its depreciation in gold value, first expelled the standard coins of gold and then dropped so low that it became profitable to melt up and export the subsidiary coins of silver. The scarcity of small change was supplied by the issue of private tokens and finally by the issue of government notes for denominations as low as three cents. The question of the metallic standard, therefore, was not a practical one until preparations began for the resumption of specie payments. When it became necessary to prepare for the coinage of metallic money for the resumption of specie payments, it was deemed advisable by the Treasury Department to revise and codify the coinage laws. In the course of this codification demonetization of the standard silver dollar, already accomplished in fact in 1834 and confirmed in 1853, was legally recognized. The act of February 12, 1873, "revising and amending the laws relative to the mint, assay offices, and coinage of the United States," provided for certain coins, among which the standard silver dollar was not included, and then in a subsequent section provided:

"That no coins, either of gold, silver or minor coinage, shall hereafter be issued from the mint other than those of the denominations, standards and weights herein set forth."

Such silver dollars as were in existence, however, still retained their full legal-tender quality until the enactment of the Revised Statutes in June, 1874, which contained the following provision:

"Section 3586. The silver coins of the United States shall be a legal tender at their nominal value for any amount not exceeding five dollars in any one payment."

It was this legislation of 1873 and 1874, in its relation to subsequent events, which led to the charge that the silver dollar had been surreptitiously demonetized and that

this action by Congress constituted the "Crime of 1873." The act of 1873 was passed, however, after a report made to Congress by the secretary of the Treasury as early as April 25, 1870, after being reprinted as many as thirteen times in the course of its consideration, and after special attention had been called in several reports to the fact that the silver dollar was discontinued and that it was the purpose to continue and confirm the gold standard.[1] It was proposed in the original bill sent to a committee by Comptroller Knox, that there should be a silver dollar of 384 grains standard silver, instead of the standard coin of 412½ grains, but that the new dollar should be coined by the government and circulate as a token coin of limited legal-tender power. This provision was not retained in the final draft of the act.

It was after the fall in the gold value of silver had changed seriously the relations between the two metals that agitation began for the remonetization of the standard silver dollar of 412½ grains at the ratio of 16 to 1 which had been fixed by the act of 1834, and for the free coinage of this dollar on private account with full legal-tender power. It was then that the advocates of this policy expressed surprise that the silver dollar had been discontinued by the act of 1873, and that the more hot-headed among them attributed this action to conspiracy on the part of the advocates of the gold standard. It was emphatically declared by the gold men that the free coinage of silver under existing conditions would drive gold from circulation, injure the public credit, and result in a dishonest readjustment of debts which had been incurred

[1] It does not fall within the scope of this work to analyze further the evidence on this subject; it is set forth by Laughlin, *Bimetallism in the United States*, chap. vii., and by Watson, *History of American Coinage*, chap. viii. Senator Sherman declares that "There never was a bill proposed in the Congress of the United States which was so publicly and openly presented and agitated." —*Recollections of Forty Years*, I., p. 467.

under the gold standard. Notwithstanding these protestations, the economic condition of the country and the scarcity of money were such that the House of Representatives, in the autumn of 1877, passed a bill reported by Representative Bland, of Missouri, for opening the mints to the free coinage of the silver dollar. This bill was amended in the Senate so that the privilege of free coinage on private account was eliminated, but the secretary of the Treasury was authorized and directed to buy not more than $4,000,000 and not less than $2,000,000 worth of silver bullion per month, and to coin such bullion into standard silver dollars of 412½ grains. This measure was known as the Bland-Allison Act, because Senator Allison was the author of the modifications made in the original Bland Act with the purpose of preventing free coinage. In spite of the veto of President Hayes, the bill was passed by the two-thirds vote in each House necessary to override a veto and became a law February 28, 1878.

The act of 1878 did not have the expected effect of raising the price of silver bullion or seriously staying its fall. A new agitation for the free coinage of silver, which came to a head in the Fifty-first Congress, resulted in the passage (July 14, 1890), of the so-called "Sherman Law." Senator Sherman was responsible for this law in the same sense as Senator Allison for the act of 1878, that he presented it as a substitute for a bill for the free coinage of silver.[1] The act followed in part the recommendations of Secretary Windom, in his annual report for 1889, that silver bullion should be purchased monthly by the Treasury and should be paid for in notes issued by the government.

[1] Senator Sherman afterwards declared: "The silence of the President on the matter gave rise to an apprehension that if a free coinage bill should pass both Houses he would not feel at liberty to veto it. Some action had to be taken to prevent a return to free silver coinage, and the measure evolved was the best obtainable. I voted for it, but the day it became a law I was ready to repeal it, if repeal could be had without substituting in its place absolute free coinage."—*Recollections of Forty Years*, II., p. 1070.

The House of Representatives passed a bill conforming in some degree to the recommendations of the secretary, but providing that the proposed notes should be redeemable in coin instead of silver bullion.[1] The Senate substituted a bill for the free coinage of silver. In conference committee a modified bill was adopted, requiring the Treasury to purchase four and a half million ounces of silver per month and to issue treasury notes, which the secretary of the Treasury was directed to redeem "in gold or silver coin at his discretion."

The cumulative effect of the coinage under the Bland-Allison and the Sherman acts soon proved disastrous. It became evident that the circulation was surcharged with silver to an extent beyond the capacity of trade to absorb it. The influence of Gresham's law began to be clearly manifest. The constant tendency of the excess of silver issues above the needs of trade was to deteriorate the average quality of the currency by increasing the ratio of the silver, all of which remained at home, to the gold, much of which went abroad. Gold exports began in large volume the month the Sherman law was approved. The fiscal year ending June 30, 1891, witnessed net exports of gold from the United States to the amount of $68,130,087; 1892, $495,873; and 1893, $87,506,463. The small net exports of 1892 were due to the unusual movement of American crops, which brought a considerable current of gold into the country to offset that which was lost under the pressure of the Sherman law. There was a remarkable coincidence between the issues of treasury notes under this law, the net exports of gold, and the reduction of the

[1] The essential recommendation of Secretary Windom on this subject was to "issue treasury notes against deposits of silver bullion at the market price of silver when deposited, payable on demand in such quantities of silver bullion as will equal in value, at the date of presentation, the number of dollars expressed on the face of the notes at the market price of silver, or in gold, at the option of the government; or in silver dollars at the option of the holder."—Finance Report, 1889, p. lxxiv.

gold holdings of the Treasury. The treasury notes issued from the date of the passage of the law up to June 30, 1893, were $147,190,227; net exports of gold for the three years ending June 30, 1893, were $156,132,423; and the net reduction of gold in the Treasury was $133,156,991.

While the United States thus appeared in the markets of the world, by the laws of 1878 and 1890, as greater purchasers of silver in a single year than the entire coinage of silver in the country during any previous period of a generation, or the entire imports of silver into France in any year prior to 1873, these laws failed to restore the parity of silver with gold at the ratio of 16 to 1, and still less at the European ratio of $15\frac{1}{2}$ to 1. The purchases of silver under the act of 1878 were 291,272,018 ounces, representing a cost of $308,279,260. This represented an average price per fine ounce of silver of $1.0583 and gave an average bullion value to the silver dollars of 81.85 cents.

The Sherman law produced temporarily an influence on the price of silver. The average monthly price at New York in January, 1890, was $0.9751; the average price in June was $1.0575, which rose in July to $1.08942; in August to $1.16995; and in September to $1.1656.[1] The effect of this enhancement of the price was to draw silver from every quarter of the world to the United States. The silver pesos of Mexico, the worn Spanish and local coins of South America, and the rupees of India flowed to New York, where they were melted into bars and offered to the Treasury as bullion. This appearance of old hoards inevitably produced a reaction in the price of silver. The average price in October, 1890, dropped to $1.10315. From

[1] The highest price reached was $1.21 on September 3d. Noyes accounts for a part of the rise by declaring that "The speculators promptly put their machinery in order, and by way of affording every possible facility to a speculative craze, the New York Stock Exchange arranged for the deposit of silver bullion and the issue, against such deposits, of negotiable certificates which could be bought, sold and delivered on the Exchange like any other security."—*Thirty Years of American Finance*, p. 153.

that time onward, with trifling fluctuations, the course of prices was steadily downward, until the average London price was only $0.988 per ounce for the calendar year 1891 and $0.87145 for 1892. Then came the decision of the British government to close the mints of British India to the free coinage of silver, and a panic in the United States resulting in part from the revelation which this incident afforded of the weakness of silver as a basis of circulation. The provision of the act of 1890 for the monthly purchase of silver bullion was repealed by the act of November 1, 1893, passed at a special session of Congress called by President Cleveland for the purpose.

The total purchases of silver under the act of 1890 were 168,674,682.53 fine ounces, representing a cost of $155,-931,002.25. The average price paid per fine ounce for the entire amount, in spite of the high prices of the autumn of 1890, was only 92.44 cents, representing an average bullion value for the silver dollars of 71½ cents.

The operation of these two acts of Congress was a disappointment in every respect to the advocates of bimetallism. They contended, by way of explanation, that these laws were less influential upon the price of silver than would have been the opening of the mints to free coinage of the metal. While this contention may have had some force, it was evident that the United States were incapable of raising silver under any circumstances to a parity with gold at a ratio of 16 to 1, since purchases of silver larger than the aggregate production of the world in any year prior to 1890 had done little more than afford a temporary parachute to the accelerating fall in the value of the metal.

France and the United States thus afford in their monetary history the nearest approach to the successful operation of the bimetallic system. The fact that the system broke down in both countries and had to be abandoned, in order to avoid the loss of gold and the prevalence of the single silver standard, seems to demonstrate historically

that it is not in the power of a single nation to give rigidity of relationship by its laws to money of two different metals when it is optional with the owner of bullion of either metal to have it converted into legal-tender money. The same experiment on a smaller scale in other countries has been equally disappointing. Even before the theory of bimetallism was conceived of as a definite economic policy, the attempt to float coins of two metals with full legal-tender power had been defeated in a manner, often mysterious to the public authorities, by the instinctive promptings of self-interest among individuals. Thus, Sir Thomas Mun declares regarding the English legislation of Elizabeth:[1]

"We have seen by experience that the late raising of our Gold ten in the hundred, did bring in great store thereof, more than we were accustomed to have in the Kingdom, the which as I cannot deny, so do I likewise affirm, that this Gold carried away all or the most part of our Silver (which was not over-worn or too light), as we may easily perceive by the present use of our Moneys in their respective qualities: and the reason of this change is, because our Silver was not raised in proportion with our Gold, which still giveth advantage to the Merchant to bring in the Kingdom's yearly gain by trade in Gold rather than in Silver."

Governments themselves in those early days acted from the same motives, in preferring the cheaper to the dearer metal, which acted upon the minds of the merchants and money-changers. Mints open to the public are a comparatively modern phase of government coinage.[2] As Thorold Rogers declares, the English mint was looked upon as a department of the exchequer. It received money in payment of taxes and dues, and in coining what

[1] *England's Treasure by Forraign Trade*, p. 42.

[2] The English free-coinage act was passed in 1666. The text is given in the Report of the International Monetary Conference of 1878, Sen. Ex. Doc. No. 58, 45th Congress, 3d Session, p. 309.

it needed for the expenses of the government, "it coined, we cannot doubt, that metal which it could procure at the cheapest rate, in preference to that which cost more."[1] Fourteen times as much gold was coined as silver from 1701 to 1724, by reason of the overvaluation of gold by the English coinage ratio. Such silver as remained in circulation consisted of the worn pieces which lacked the value as bullion belonging to the pieces of full weight. Even Cernuschi, the ardent and logical advocate of bimetallism, admits that under early conditions the "difference in the cost of mintage gave certainly a preference to gold against silver." He says:[2]

"When a payment was to be made by one country to another, it was certainly more preferable to send gold than to send silver, because, in melting down the gold in order to obtain a new coin in a foreign country, the coinage expenses were much less than the expenses in melting down and recoining silver. When a country was so deprived of gold, its mint changed its ratio in favor of gold in order to induce the return of gold."

Nowhere did the two metals circulate long side by side where both were freely coined. In many cases restriction of the coinage of one metal or the other changed the relations which they might have had as bullion under the policy of free coinage; but wherever the actual bullion value of a coinage was above its exchange value, it tended to disappear from circulation under the manipulation of the money-changers almost as quickly as under modern conditions of organized markets and telegraphic and cable transfers. Bimetallism, continuously and successively operative, is not to be found in economic history—ancient, mediæval, or modern. It will remain to discuss hereafter whether it would be possible by the concurrent agreement of many nations.

[1] *The Industrial and Commercial History of England*, p. 325.
[2] *Nomisma; or, Legal Tender*. p. 24.

III

EVOLUTION OF THE GOLD STANDARD

A natural result of the failure of local bimetallism—Tendency of wealthy societies to employ the more valuable metal—Effect of the increase in the supply of gold after 1850—Early history of relations between gold and silver—The international monetary conference of 1867—Movements in favor of gold in France, Germany, Austria, Russia, and other countries—The Gold Standard Act of 1900 in the United States.

THE failure of all attempts thus far made to keep gold and silver in concurrent circulation gradually led, during the latter half of the nineteenth century, to the evolution of a monetary type which was not distinctly recognized, even where it was tacitly adopted, during antiquity and the Middle Ages. This type is the single gold standard. To the general adoption of the single gold standard two factors have contributed—the growing preference for gold as the money of commerce and the realization of the fact that a sound standard should be of a single metal.

The law of evolution by which the metals came to be used as money has already been set forth. Society, by degrees, through a process of natural selection, has tended to select and use for money the article best adapted to the purposes of general exchangeability in the community where it is used. It does not necessarily follow that the article selected has always, under differing conditions, been the same. In early times, after temporary forms of currency, like cattle and skins, had been eliminated, iron was the standard among peoples of small resources and

restricted transactions. Then came copper; then, at a later epoch, silver; and then gold, each fulfilling the requirements of a medium of exchange for general use adapted to the character of transactions and the economic resources of the time.

There has been a strong tendency in progressive societies to advance gradually from a cheaper to a more precious article as the material of money and the standard of exchanges. This has been the natural result of two causes —the accumulation of a larger surplus fund of capital for investment in the medium of exchange, and the rise in the scale of wages and prices. While the product of human labor was scanty, there could be but a small margin of saved capital above what was necessary for daily wants. Hençe there could be but a small fund of capital set aside for investment in the medium of exchange. For similar reasons, arising out of the small productive power of labor, wages—where the wage system was in operation—would be small, and the volume of transactions would be limited in a corresponding degree by the small purchasing power of members of the community.

It has been by no arbitrary action of governments or individuals that gold has gradually been formally recognized as the standard, first of Great Britain, and then of the nations of the Continent of Europe and of the United States. It is especially fitted for large transactions because of its great value in small bulk. This made it the money of international commerce even while silver was largely used in domestic transactions. So strong is this tendency to select the most convenient instrument for making exchanges, that even paper supersedes gold where it is equal to gold in value, or where by law it is a legal tender for the amount of gold expressed on its face. The notes of the Bank of England are generally acceptable on the Continent of Europe, because they afford one of the easiest means of making remittances to London. American legal-tender paper and bank-notes were accept-

ed in much the same way in the Orient after American occupation of the Philippines, because they offered a more portable and convenient method of remittance to New York than gold coin or bullion.

An important factor in promoting the adoption of the gold standard was the great increase in the production of both of the precious metals in the nineteenth century. The increase in the word's supply of gold made it practicable for one nation after another to find in the market, and to acquire without too great an economic sacrifice, a stock of gold adequate for the basis of its monetary system. The increase in the volume of metallic money, moreover, along with other economic changes, tended to change the relation of money to goods in a way to make both of the precious metals less valuable than before, and to bring the smaller gold pieces more nearly within the range of retail transactions. This point is well set forth by the Vicomte d'Avenel:[1]

"The fall alone in the purchasing power of the precious metals has rendered silver inconvenient and ill-adapted to a multitude of uses for which it formerly sufficed. The same object which one might have obtained in 1400 or in 1500 for 1,000 grams of silver, would require to-day 5,000 or 6,000. One could carry a kilogram in his pocket, or five or six kilograms in his valise, but he revolts at carrying five or six in his pocket and 25 or 30 in his valise."

The opening of the mines of California and Australia, about 1850, so increased the stock of gold within a generation as to make it adequate to the needs of money in the principal commercial nations of the time. The subsequent discoveries in South Africa, about 1883, and in the Klondike at an even later date, tended to maintain the supply and to afford an increment of increase which permitted countries less strong in economic resources, like

[1] *La Fortune Privée à Travers Sept Siècles*, p. 64.

Austria, Russia, and Japan, to follow successfully in the wake of other gold-using countries.

Inevitably, as one nation after another adopted the gold standard, the reasons multiplied for its adoption by the rest. This was partly, but not solely, due to the fact that the adoption of the gold standard brought the nation which adopted it into relations of stable exchange with the richer nations, and pre-eminently with England. It was also because every accession to the list of gold-standard countries increased the stability of gold by spreading over a wider field possible fluctuations in its exchange value arising from changes in the total supply or in the demand in any one country. Every nation which opened its mints to the free coinage of gold, and closed them to silver, by so much widened the market for gold bullion. With every widening of the market came a greater assurance of the ready absorption of new supplies and of the attenuation of the influence of any given deficiency of supply. According to the terse maxim of Taussig, "The wider the field over which a given medium of exchange is used, the less likely is it that changes in its quantity will affect its value."[1] In substantially all commercial nations there is now a market for gold. If abnormal conditions reduce the stock of gold in one nation and increase the demand for it, the deficiency can be supplied from an area representing substantially the civilized world. The large stock of gold in use as money throughout the world, amounting to nearly six thousand millions of dollars, affords a foundation upon which the added increment of a single year can have but a slight influence in affecting the entire stock, and upon which any new and special demand can have only small effect.

It has been one of the fundamental flaws in the argument for keeping gold and silver at a fixed par through the method of international bimetallism that it has failed to

[1] *The Silver Situation in the United States*, p. 124.

recognize fully the difficulty of keeping one metal in the same degree of esteem as another when it does not possess the same degree of utility for the purposes of money. Where silver has been best adapted to the purpose of exchanges, in an imperfectly developed society, it has been eagerly sought and highly valued. Thus, in India, silver has always been rated higher in proportion to gold than in more advanced communities, and the demands of India, both for coinage and for ornament, are the chief source of demand which still sustains the market. This tendency is thus defined by Schoenhof:[1]

"It may also be of use to call attention to the fact that the high valuation of silver, as compared with gold, has been usual with countries in a backward state, and that, reversely, a lower valuation is the sign of a more advanced civilization. This, to a very large extent, is owing to the fact that, in undeveloped countries, silver is the chief currency, and, therefore, in constant demand, on account of the limited monetary transactions. It is the economic and industrial condition which governs the demand, and not the fiat of legislators and rulers."

This view seems to be consistent with the fact that as soon as such advanced countries as France were willing to part with their silver, because its place was supplied by gold, the white metal was eagerly absorbed by those countries to whose conditions it was especially adapted. Thus India and other parts of Asia, which had taken from England by a single route in 1851 only £1,716,100 in silver, took in 1856 £12,118,985 and in 1857 £16,795,232.[2] While by Newton and Cernuschi such movements of the precious metals are attributed to the arbitrary operation of statute law, in establishing different ratios between the metals, a deeper cause behind the law, shaping its provisions, seems to be found in many cases in the desire to attract one metal or the other, or (in the absence of such a

[1] *A History of Money and Prices*, p. 41.
[2] *Vide* Chevalier, *La Monnaie*, p. 51.

deliberately formed intent) to permit one to supersede the other, according to the local preference for the metal best suited to local needs.[1]

A striking case of the operation of this principle of natural selection is afforded by the relations between the Arabians and Tyrians. In Arabia the value of silver in relation to gold was much higher than in Spain, where the Tyrians procured large amounts of silver from the mines. The Tyrians, accordingly, conveyed much of the silver they procured in Spain to Arabia and there exchanged it for gold, to their own great profit and the increase in the stock of the metal which they most highly prized.[2] A like tendency was noted by Newton in 1717, that "in China and Japan one pound weight of fine gold is worth but nine or ten pounds weights of fine silver, and in East India it may be worth twelve, and this low price of gold in proportion to silver carried away the silver from all Europe."[3]

Gold has become the money of highly civilized states because it is best adapted to their requirements for the purpose. This was indicated with the dawn of modern commerce after the discovery of America by the change in the relative value of the two metals. A given weight of gold which was equal in value about the year 1500 to 10.75 corresponding weights of silver rose in relative value until it stood in the ratio of 1 to 11.80 weights of silver at the close of the sixteenth century, 1 to 14½ in the middle of the next century, and about 1 to 15 at the close of the seventeenth century in 1700. It was noted by the Italian Montanari as early as 1683 that "the ratio of silver to gold

[1] Even Cernuschi declares, speaking to the United States Monetary Commission in 1877, "Your law of 1834, raising the value of gold as against silver from 1:15 to 1:16, was enacted precisely with the aim of inviting the importation of gold."—*Nomisma; or, Legal Tender*, p. 24.

[2] Jacob, I., p. 79.

[3] Mint Reports, "Select Tracts on English Monetary History," p. 192.

of 12 to 1 has changed to a ratio of 14¾ to 1." This writer believed that the chief cause of the appreciation of gold was to be found in the trade with the Levant by which great quantities of the precious metals were exported from Europe. A part of the change in the relative value was due to the large production of silver in America, but the underlying economic causes are summed up, after careful investigation, by Soetbeer as follows:[1]

"The cause of the increased demand is to be found primarily in the continuous wars in Europe, which, as is well known, caused gold to be in great request. Next, it is to be found in the growth of international trade in the seventeenth century, which, notwithstanding the extending use of bills of exchange, yet created the need for shipments of coin. Obviously gold, both intrinsically and because of the common prohibition of coin shipments, was a better medium than silver. Whatever may have been the decisive cause, there can be no doubt that between 1621 and 1650 a considerable and permanent change took place in the ratio of the precious metals in all civilized countries. If wars and the necessities of government treasuries were at the outset the chief causes, yet appreciations brought about by them could not have been permanent unless a further cause, the growing use of gold in international trade, had come into operation. No explanation of such an extraordinary change can be found in the conditions of the production of gold and silver. Nor can we believe, after repeated examination, that the rise in the value of gold is to be ascribed chiefly to mint regulations. On the contrary, these regulations are generally based on changes in the price of gold that had already taken place in the open market."

Even so strong a bimetallist as Walker frankly admits that in England, at least, as early as 1666, "Unquestionably trade was all the time attaining conditions which made

[1] "Bimetallism in Europe," Sen. Ex. Doc. No. 34, 50th Congress, 1st Session, p. 111.

a larger use of gold convenient and desirable; unquestionably, also, England was the country, of all the world, whose business justified the largest use of it."[1] In France, after the gold discoveries of 1850, the common-sense of the business community accepted the influx of gold and the flight of silver with a profounder grasp than closet economists of the tendencies of the time. Such a representative economist as Chevalier, alarmed by the revolution going on in French coinage, proposed that coinage of gold should be limited in order to keep it from driving silver from the country. But the small shopkeepers accepted the new gold coins with little hesitation, many of them hanging out the notice, "Gold received here without loss."[2] A special commission which investigated the subject in 1858 reported that the use of gold in France had been productive of great benefits to trade, and that if there had been an increased production of gold, there had been, on the other hand, a correlative progression in the volume of business.[3]

That the demand for gold in the West and for silver in the East gave to each a marginal value according to local preferences is demonstrated by other facts growing out of the great outpouring of gold from the mines between 1850 and 1870. The premium on silver which prevailed for a time in Europe is attributable in some degree to the fact that England having large payments to make to Asia, and having no stock of legal-tender silver upon which to draw, had to procure the metal in those countries where it was in use by paying for it a premium in gold. This demand for Asia diminished in 1861, and the premium on silver disappeared at the very moment when the stock of gold was relatively greater and that of silver relatively less than at any previous time.[4] Even up to 1875, when the gold

[1] *International Bimetallism*, p. 78.

[2] Walker, *International Bimetallism*, p. 125. [3] Willis, p. 12.

[4] Moran calls attention to the fact that from 1852 to 1859 the total exportation of silver from France was 2,505,813,178 francs,

value of silver had fallen more than five per cent., the annual production of silver in the world had not overtaken the production of gold.

How rapidly the preference grew in France for gold and paper, and how steadily silver fell into disrepute, is indicated by the accumulation of silver in the vaults of the Bank of France. From 1869, when the maximum silver holdings of the bank were 593,300,000 francs ($115,000,000), the silver rose in 1880 to a maximum of 1,282,500,000 francs ($248,000,000), and has ever since oscillated around this figure. There has been no substantial increase in the demand for the white metal for circulation, in spite of the share which has fallen to France of the great increase in the world's volume of money transactions since 1880. The proportion of silver five-franc pieces to other parts of the currency steadily declined, however, as France received her share of the increasing gold stock of the closing years of the nineteenth and the opening years of the twentieth century. Analyses made of the payments into the Bank of France, the large stock banks, and the public offices showed that the five-franc pieces, from making up 9.93 per cent. of such payments in 1885, fell to 5.92 per cent. in 1891, 4.52 per cent. in 1897, and 3.66 per cent. in 1903. Even gold fell in proportion to paper, but in a less proportion than silver.[1] As Noel declared, as far back as 1888: [2]

"In virtue of the economic law which tends to simplify methods of payment, silver was at first less sought and

and during the same period the exportations of silver from England and Mediterranean ports for China and the East Indies was 1,917,500,000 francs, or about 76½ per cent. of the exports from France.—*Money*, p. 53.

[1] *Bulletin de Statistique* (March, 1904), LV., p. 294.

[2] *Banques d'Émission en Europe*, I., p. 183. The maximum silver holdings of the Bank of France in the year 1904 were 1,136,000,000 francs ($220,300,000) and the minimum holdings 1,097,000,000 francs ($211,800,000).—*Bulletin de Statistique* (February, 1905), LVII., p. 174.

then neglected by the public, until it naturally drifted to the private banks and from them to the Bank of France, which serves them as a reservoir. Of the two thousand five hundred millions of silver which France possesses, nearly half is immobilized in a permanent manner in the reserves of the bank, from which it never comes out unless to immediately return."

Even Antoine, an advocate of bimetallism, frankly admits that "every attempt to lighten the silver reserve of the bank and to increase the number of crowns employed by commerce and individuals, has invariably failed."[1] In the United States the proof that the era of silver has gone by is afforded by the failure of repeated efforts to increase the amount in circulation and the ready acceptance of paper certificates for the coined pieces. The circulation of standard silver dollars was $67,547,023 at the close of December, 1891, and the highest point attained during the succeeding ten years was only $76,182,326 on December 31, 1900. The circulation of silver certificates, on the other hand, rose from $320,817,568 on December 31, 1891, to $460,462,103 on June 1, 1905.

These facts show the gradual emergence of gold as the tool of exchange in the advanced commercial countries. Representing a larger value in small bulk, it was more convenient for reserves and for large payments than the cheaper metal, and more easily transferred from place to place and country to country in settlement of banking balances. The fact that silver has ceased to be a convenient tool of exchange in advanced countries is indicated by the propositions of bimetallists themselves that paper notes should be issued upon silver bullion in order to continue its use as money. It is to be said in reference to such projects that they are an admission in themselves that silver is not in the advanced countries a convenient medium of exchange. It is true that paper certificates are

[1] *Cours d'Économie Sociale*, p. 290.

issued also for gold, and constitute one of the many forms of paper credit which economize the use of money. But gold is eagerly accepted in final settlements, and possesses a higher utility as a compact and convenient medium of exchange than silver in just the ratio of its higher value for a given weight—whether at the legal ratio of sixteen to one, which prevails in the United States, or the commercial ratio of thirty-five to one, which has prevailed in recent years in the open market. In international transactions the law of legal tender contributes little to give value to coins. In that market it is weight of metal, not decrees of governments, which determines the value of the money exchanged. As the process is described by Lord Farrer:[1]

"If a bill is drawn in New York on London, American dollars are legal tender for the purchase-money of the bill in New York, and English sovereigns are legal tender for the discharge of the bill in London. But as there is no international legal tender law fixing the number of dollars which shall be paid for a sovereign, the number of dollars or of sovereigns to be paid for a bill is settled by private contract based upon the number of dollars which the market will give for a sovereign."

The return to silver as the merchandise from which standard money was to be composed would be, for advanced commercial nations, a step backward, in the same direction as would be the acceptance of copper or iron. Each of these metals is a marketable article, but only the most valuable represents the most efficient and economical commodity to be interposed between the interchange of other commodities. Hence the attempt to give to silver bullion, by free coinage, a higher value by law than it has acquired in the competition of the market-place fights against the natural tendencies of modern society to choose for any service to be performed the method or the substance which affords the maximum of results with the

[1] *Studies in Currency*, 1898. p. 40.

minimum of effort. An inevitable process of natural selection has made gold the standard money of leading commercial states. Where law has recognized this fact, it has only crystallized the tendencies of economic society and has not often anticipated them.

In antiquity, the metal which tended to become the standard followed the rule of evolution which has been above set forth—first iron, then copper, then silver, then gold. During the early days of Rome, when her chief wealth was in the hardy spirit and ready swords of her citizens, copper money served the universal purposes of exchange. The very name of the Latin word, *æstimare*, "to value," was derived from *as*, the word for copper, and the treasury of the state was known as the *ærarium*. With growth in wealth, in 268 B.C., about the time of the final conquest of Samnium, came the coinage of silver, and this was soon followed by the introduction of gold. Roman gold coins were not struck in considerable amounts until the time of the Empire, but that gold was rapidly coming into use is shown by the fact that it constituted more than half of the treasure held in the *ærarium* in the first and second centuries before Christ, and that a law was passed under Sulla imposing the same penalties on the adulterators of the gold ingots as those imposed upon the coiners of false silver money. The discovery of rich gold-mines in Noricum, about 150 B.C., changed the market ratio of gold to silver from about 1 to 17 to 1 to 8.93. The coinage ratio fixed by Julius Cæsar, and continued by Augustus, was 1 to 11.91.[1] This tended to prevent the coinage of silver and bring the new gold to the mints. Then, as in later times, the need for the more precious metal seemed to evoke it from the earth, and both the coinage laws and the necessities of commerce welcomed it into general circulation. Carlile declares that a phenomenon of this kind differs essentially from the expulsion of a good money

[1] Lenormant, *La Monnaie dans l'Antiquité*, I., p. 166.

by a bad under the operation of Gresham's law. He argues:[1]

"In the latter case, industry and commerce are thrown into confusion, and the reform of the coinage becomes, sooner or later, the subject of an urgent popular demand. In the former case, on the contrary, as was found by the experience of both England and of France, there is nothing but general congratulation at the change. So far as it is possible to judge, the same was the case in Rome in the era of Augustus. Gold had already become the most important medium of wholesale trade. Its new abundance made it now also the great medium of the internal circulation, and relegated silver to the second place."

It was only by degrees, however, that gold became predominant. For a time the effort seems to have been made to keep the two metals together and to change the weight of the coins of one with that of the other; but this crude experiment in bimetallism failed, and from the time of Nero (54–68 A.D.) to that of Septimus Severus (193–211) the silver coins were treated as tokens, and gradually reduced to a fineness of only forty or fifty per cent.[2] Other reductions of the coinage followed, but the gold *aureus* or *solidus* finally adopted by Constantine in 312 remained the standard unit of gold until the downfall of the Eastern Empire in 1453.[3]

With the eclipse of civilization and decline of wealth during the Middle Ages, gold fell to a subsidiary place, and silver came to be regarded, where there was any money in use, as the standard money metal. But as soon as wealth began to accumulate again in the Italian and Dutch cities, gold money again came into use. It was already the money of international commerce to a considerable extent even while it was not the standard money of circulation in any country. The foreign trader could

[1] *The Evolution of Modern Money*, p. 39.
[2] Lenormant, *La Monnaie dans l'Antiquité*, I., p. 184.
[3] Ridgeway, p. 384.

make his contracts in gold, because he was not bound by legal-tender laws in dealing with merchants of other nations. Even at home, he "contracted out" of legal-tender laws which debased the coin, and as these debasements usually applied to silver, gold became more and more the money of trade.[1]

In England, the bad state of the coinage in the time of King William III. led to the calling in of the old and battered silver and its recoinage, from 1695 to 1699, into bright new pieces of full weight. But almost as soon as the new pieces issued from the mints they disappeared, and only the old, battered, and diminished pieces remained. Although this phenomenon puzzled many persons at the time, its reason is plain. The new silver was undervalued in its ratio to gold. This made it profitable to melt the coin and export it. Gold, which was then overvalued, tended to become the standard, while the defaced silver, being considerably less in bullion value than the new pieces, was at substantial commercial parity with the gold, and therefore remained in circulation for subsidiary purposes. As no new silver was brought to the mint for coinage, the old pieces became more and more worn, but were kept in circulation by the necessity for subsidiary pieces representing smaller value than the pieces of gold. They thus conformed in fact, without any deliberate plan, to the rules under which modern states have issued their subsidiary coinage; they passed for their face value, irrespective of their bullion value, and their quantity could not be unduly increased.

Thus England became, in the language of Shaw, "a gold monometallic country for the greater part of the eighteenth century, and that long before the advent of any theory of gold monometallism."[2] Already, in 1774, Parliament had passed an act limiting the legal-tender

[1] Avenel, p. 54. See also the instances collected by Carlile, *The Evolution of Modern Money*, pp. 51–76.

[2] *Select Tracts on English Monetary History*, p. 9.

power of silver coins to £25, which was followed in 1799 by closing the mints to the coinage of silver on private account.[1] Adam Smith, when he wrote in 1776, already spoke of gold as holding up the value of the silver coin, and the mint price of gold bullion was fixed at £3 17*s.* 10½*d.*, at which it has ever since remained. Lord Liverpool's act, which established the gold standard in 1816, simply recognized by law the condition existing before the suspension of cash payments in 1793—that gold was the standard money of English trade. England, in 1816, was pre-eminently the leader among commercial nations. Other nations were somewhat slow to follow her example in adopting gold as their monetary standard while the stock of gold in the world remained small. But when the gold stock was so increased as to form a large part of the circulating money even in former silver-using countries, gold came, by force of circumstances, to be the standard money of commerce.

A monetary conference called by France in 1867, in which nineteen nations were represented, declared for gold as the standard of value, with only one dissenting vote. Even the delegate of the Netherlands, who cast the negative vote, stated that he would have voted with the majority if each state had been left to judge of the time for which it should maintain the double standard.[2] The preference for gold was cropping out everywhere in French commercial life, but the Imperial government hesitated, and by hesitating condemned France to the great influx of silver which in later years made it so difficult for her to maintain the stability of her money. Up to 1860 the heavy silver five-franc pieces had been growing scarcer in France, in spite of the bimetallic character of the Latin Union. When an inquiry was ordered by the govern-

[1] *Vide* International Monetary Conference of 1878, Sen. Ex. Doc. No. 58, 45th Congress, 3d Session, p. 348.

[2] International Monetary Conference of 1878, p. 832. *Con.* Russell, *International Monetary Conferences*, p. 64.

ment as to the proportions of money received by public officers, many of these officers accounted for the considerable amount found in five-franc pieces by the unwillingness of individuals to receive them in ordinary transactions.[1] The Chambers of Commerce expressed themselves in the ratio of more than three to one in favor of the gold standard. In Germany a commercial convention representing 119 German cities adopted, in October, 1868, a report prepared by Soetbeer in favor of a new currency based on the gold standard with the decimal system.[2] In Great Britain a parliamentary commission was appointed to study the proposals of France for a uniform coinage, but in reply to an inquiry from the French government as to its progress, the Chancellor of the Exchequer declared that it would be impossible to hold out any hope of assimilation till France made up her mind to have only the gold standard.[3]

Thus public opinion, and especially commercial opinion, was crystallizing in favor of gold before the depreciation of silver had seriously begun. There was at that time no tangible reason why the economists and bankers of Europe should have preferred gold to silver except the general economic tendency to prefer for any operation of commerce the most efficient means of accomplishing it. The conference of 1867 and the declarations of the French and German commercial bodies put into formal terms the results of this natural law of economic efficiency. The French government, indeed, until the outbreak of the war with Prussia, resisted the general movement. A commission of its own appointment, in 1869, made a report declaring that the single gold standard was more favorable than the double standard to monetary unity, that it would be more advantageous in foreign commerce, and that it was better suited for providing an interior circula

[1] Willis, p. 99.
[2] International Monetary Conference of 1878, p. 727.
[3] Russell, p. 101.

tion at once stable and convenient.[1] Although this commission was thus clear-cut in its expressions, and although it recommended reducing the legal-tender power of the silver five-franc pieces to 100 francs ($19.30), the Minister of Finance, M. Magne, named a new commission, which did not conclude its sittings until after the declaration of war in July (1870). This commission declared by a large majority in favor of the principle of the gold standard.[2] It declared also in favor of suspending or limiting the coinage of the silver five-franc pieces, "as a precautionary measure, to ward off the attacks directed against our gold circulation." [3]

France was thus preparing to take the lead among the principal nations of the Continent in the adoption of the gold standard, when Germany, as the result of the war of 1870, was enabled to supplant her as a leader in monetary matters. It was believed in France, rightly or wrongly, after the war, that the transition from the silver to the gold standard would involve burdens to the fiscal and monetary systems which could not be safely added to the burden imposed by payment of the war indemnity.[4] Sweden and Norway had already adopted a gold coin for international trade in 1830, and Portugal had adopted a definitive gold standard in 1854. It remained for Germany, however, to take the lead among important nations in meeting the demand of international commerce for the extension of the gold standard. The great confusion caused by her local coinages made it one of the first cares of the Imperial government to adopt a uniform currency. With the financial strength derived from the proceeds of the indemnity, this policy became easy of execution. That it was the culmination of a swelling

[1] Bonnet, p. 33. [2] Arnauné, p. 195.

[3] Berlin Silver Commission of 1894, I., p. 45. A convention had already been signed on July 31, 1867, between Austria and France, for establishing a fixed relation between the franc and the gold florin. [4] *Vide* Shaw, *The History of Currency*, p. 276.

volume of opinion among men of business as well as economists, is the weighty testimony of Professor Bamberger in the paper submitted to the Berlin Silver Commission of 1894:[1]

"It is self-evident that such an agreement of all European countries and of the United States of America did not arise from accident, but that it distinctly pointed out the ways of the future currency policy of the whole civilized world, and whatever has since then been done in the world has justified that foresight. A happy conjuncture merely permitted Germany at a favorable moment to be the first to enter on that path, and to quickly overcome the difficulties which, in the course of time, rendered the development of matters difficult for other states. Nor can there be any doubt that, if Germany had at that time decided in favor of the silver standard or the double standard, the rôles would have been exchanged, and other states, especially those of the Latin Monetary Union, would have secured precedence at the expense of Germany."

The preponderance of opinion in favor of gold among leading students, financiers, and merchants of Germany, was formulated in the law of July 9, 1873, adopting the single gold standard, withdrawing the old silver thalers from circulation, and selling in the open market the silver which was replaced by gold. In the United States, the mints were closed in 1873 to the free coinage of the standard silver dollar, but in the United States also the act of 1873 was but the recognition by law of previous facts, which had made gold the standard from 1834 down to the suspension of specie payments in the Civil War, and had practically prevented the presentation of silver to the mints for many years except for subsidiary coins.[2] With

[1] U. S. Sen. Ex. Doc. No. 274, 53d Congress, 2d Session, I., p. 46.

[2] The total coinage of silver by the mints of the United States from 1792 to 1853 was $79,241,854, of which $2,506,890 was in coins of one dollar; the coinage from 1853 to February 12, 1873, was $64,571,744, of which $5,524,348 was in coins of one dollar;

the adoption of the gold standard in Austria in 1892, in Russia and Japan in 1897, and the closing of the mints of the countries of the Latin Union to the free coinage of silver, gold became the standard of the advanced commercial nations. The momentum acquired by the movement aroused in some quarters grave fears that the world's stock of gold would be inadequate to the demand, and caused a reaction which gave weight for a time to the movement for international bimetallism.

In the United States, the struggle by which the gold standard was finally established by law beyond cavil was made especially acute by the neglect of Congress to provide a proper system for issuing credit in the less developed parts of the country, and by blind gropings for a remedy for the industrial depression of 1893. After the country had declared unequivocally for the gold standard in the presidential election of 1896, a conference was called by the Board of Trade of Indianapolis, on the initiative of Mr. Hugh H. Hanna of that city. This preliminary gathering resulted in two large conventions of representative business men, held in Indianapolis in January, 1897, and in January, 1898, which demanded the enactment of laws by Congress for a "deliberately planned monetary system." It was demanded that such a system should provide that the present gold standard should be maintained, and that steps should be taken for the ultimate retirement of government legal-tender notes.[1] When Congress neglected to authorize a commission to frame such a measure, a commission was named by the executive committee of the convention, with ex-Senator George F. Edmunds, of Vermont, at its head, and the Hon. Charles

the coinage from February 12, 1873, to June 30, 1904, was $761,556,846, of which $606,288,250 was in coins of one dollar. These figures include recoinages.—Report of the Director of the Mint, 1904, p. 152.

[1] Report of the Monetary Commission of the Indianapolis Convention, p. 8.

S. Fairchild, ex-secretary of the Treasury, among its members.

The measure proposed by this commission was too complete and far-reaching to find immediate acceptance. But their report, as Hepburn declared, "was forceful, lucid, and convincing, and had great influence upon the public mind."[1] It served at least to set up a standard towards which practical legislation was directed, if it could not absolutely attain. To the patience, tact, foresight, and self-sacrificing public spirit of Mr. Hanna, chairman of the Executive Committee, was largely due the final fruition of the movement in the Gold Standard Act of March 14, 1900. This act was the result of meetings of committees of the two Houses of Congress during the long recess of 1899. With these committees Mr. Hanna was in frequent conference, as he had been with the regular committees during the two previous sessions of Congress; and the committee on the part of the House, representing the leading Republicans of that body, was appointed at his suggestion.[2]

The Gold Standard Act made the important declaration that the gold dollar should be "the standard unit of value, and that all forms of money issued or coined by the United States shall be maintained at a parity of value with this standard, and it shall be the duty of the Secretary of the Treasury to maintain such parity." The means placed at the command of the secretary of the Treasury for the purpose of keeping the silver coins and the government notes at par with gold were not theoretically perfect, but they went far beyond the authority conferred by previous

[1] *The Contest for Sound Money*, p. 398.

[2] The "McCleary bill," reported at the long session of the Fifty-fifth Congress by Representative McCleary, of Minnesota, embodied many of the measures of the Monetary Commission, but was not acted on. Mr. Hepburn declares that it was the Spanish War which "nerved the Republican leaders to firm action in behalf of the gold standard, relieved as they were from fear of popular defeat."—*The Contest for Sound Money*, p. 401.

law. A definite gold reserve fund of $150,000,000 was established, to be used exclusively for the redemption of government legal-tender notes, and this fund was directed to be kept unimpaired by the secretary of the Treasury by the issue, if necessary, of United States gold bonds. Government notes redeemed in gold were to "be held in the reserve fund until exchanged for gold."[1]

Thus, by the process of the selection by commercial nations of the fittest instrument for carrying on their exchanges, gold has been formally established as the monetary standard by the laws of the leading states of Europe and of the United States. Legislation tends usually to represent the crystallized judgment of society. It does not often run directly counter to that judgment or advance far beyond it. As is well declared by Hervé-Bazin:[2]

"It is not, in short, by means of authority that governments erect a commodity into money. Authority simply recognizes the unanimous agreement of society. One who should seek in our time to set up as money, grain, flour or cattle, would certainly fail in his enterprise."

In only a less degree would that government fail which sought to continue a baser metal as the standard in a

[1] This provision was important, because the presentation of notes for redemption affords evidence of redundancy in the volume of the circulation, and the contraction which would have resulted from the redemption of notes was persistently counteracted in 1894 and 1895 by the employment of the redeemed notes for public expenditures in covering deficiencies in ordinary revenue. It was the suggestion of the present writer, while the bill was in a conference committee of the two Houses, that the provision for selling bonds should limit the use of the proceeds of the bonds to the redemption or purchase of bonds "and shall not be employed for the ordinary expenses of the government." This was modified so that the law provided that notes which were redeemed might be used to purchase or redeem bonds "or for any other lawful purpose the public interests may require, except that they shall not be used to meet deficiencies in the current revenues."—Sec. 2, Act of March 14, 1900.

[2] *Traité Elementaire d'Économie Politique*, p. 267.

commercial society which was prepared for a more precious metal. Hence, the general adoption of gold as the material of money and the standard in advanced commercial societies simply represents the crystallized judgment of the business community in those societies. As has already been shown, this judgment of commercial society preceded instead of followed the measures of governments.

In those cases where there has been hesitation and division of opinion among competent persons, there has been a real division of interest. In a country just upon the borderland between conditions in which gold is the most efficient instrument of exchange, and those conditions which make silver more convenient, there would naturally be political divisions, conflict of interest, and hesitation to depart from old policies. Where the judgment of commercial society thus wavers, the fact indicates a lingering utility for silver, growing out of low wages or lack of a sufficient surplus of saved capital for adopting a gold currency, or, perhaps, out of some peculiar defect in the monetary system which makes it difficult or costly to adopt gold. Where it is obvious that silver is the preferred form of money, conforming to local habits and to the existing scale of wages and prices, then it becomes more difficult to introduce a gold currency and the reasons for its adoption are less conclusive.

In those countries which have lingered under the realm of the silver standard, adherence to this standard has undoubtedly been determined to some degree by economic reasons rather than by chance. While much friction has to be overcome in making important economic changes, and especially in advancing from a lower to a higher form of currency, yet in the end commercial society usually tends unerringly towards the adoption of the most efficient means for carrying on its exchanges which its economic strength enables it to command. The richer commercial countries have found gold to be the most

efficient standard of value and basis of credit, and as other countries advance successively to the same rank, and the supply of gold in the world becomes adequate to their needs, they also will take their place from time to time in the circle of the gold-standard nations, until gold becomes the universal money of commerce or is superseded by some more perfect instrument for doing the world's money work.

IV

THE DISLOCATION OF THE EXCHANGES

Difficulties in trade between gold and silver standard countries caused by fluctuations in the gold price of silver—Relations of the annual production of silver to the general stock—Did falling exchange stimulate exports from silver countries?—If so, was such a stimulus an economic gain?—Facts seem to demonstrate the contrary in India, Mexico, and China—The demand for a remedy for the fluctuations of exchange.

THE benefits of a single standard adapted to modern conditions were so keenly felt in the advanced commercial countries which adopted the gold basis after 1873, that the inconveniences which might attend the step were at first disregarded or obscured. The evils of the double standard—the uncertainty which it introduced into contracts and the disturbance which it had caused to the monetary system in so many countries—had proved so serious, and the advantages of the single standard in internal trade were so great and obvious, that for a brief period it seemed as though there would hardly be a discordant note in the general chorus of satisfaction. It soon appeared, however, that several evils threatened to result from the rupture of the comparative steadiness of the relationship between gold and silver which had existed prior to the general adoption of the gold standard.

While the double standard had failed to maintain exact parity between gold and silver, it had tended to keep the metals much nearer together in value than was found to be possible when one of them ceased to be widely used as standard money. Silver was reduced to the rank of a

commodity measured in value by gold, and subject, in the same manner as any other commodity, to fluctuations in supply and demand. There were two important ways in which this change operated to make unsteady the gold value of silver. The first was by closing certain countries against its introduction as legal-tender money, and thereby directing any increase of supply entirely upon those countries which remained on the silver standard; the second was in separating the value of existing silver coins, in gold-standard countries, from the value of the bullion which they contained, and thereby removing from the market for silver bullion the steadying influence of the great stock of silver in use as money.

It was contended, with some force, by advocates of the double standard, that so long as this standard prevailed in France and other important commercial countries, the entire world was, in a sense, under the operation of the double standard. As Helm puts it, somewhat too strongly:[1]

"The joint standard was, in fact, up to 1873, the common standard of value throughout the civilized world, except where the circulation consisted of inconvertible paper-money. In some countries the legal-tender unit was of silver, in others of gold and silver, and in others of gold. Since, however, the relative values of the two metals were equalized by the action of the mint laws of the Latin Union, there was no greater variation in the rates of exchange between any two of the three classes of countries than those which occurred, or might have occurred, between any two of the same class."

While the concluding statement is subject to some qualification, it involves an important principle. Even a country using gold only could not escape the levelling influence upon the ratio of exchange between the two metals due to the fact that in bimetallic countries a market

[1] *The Joint Standard*, p. 129.

existed to which silver would be attracted if its price fell, while gold was released for use in the gold countries; and that on the other hand (as proved to be the case after the gold discoveries in California and Australia) a market for gold existed to which that metal, in its turn, would be attracted if it fell below silver in value at the legal ratio of coinage. Inevitably, under the operation of the law of supply and demand, wide markets for both metals, and the possibility of substituting one for the other as money, tended to keep the metals nearer together than if such markets were closed. Hence it would come that if there should be a relatively decreasing stock of gold, the value of gold in relation to other things would not rise so rapidly if the bimetallic system lingered in important countries as if all countries were upon a gold basis. The demand for money in the bimetallic countries would fall upon the cheaper metal, and thereby diminish the pressure upon the dearer. England could not escape the operation of such an economic tendency in keeping down the relative value of gold when it tended to rise above silver, and a silver-standard country, like France, could not escape the operation of the same tendency in keeping up the value of silver by the opportunity afforded for its free conversion at its mints into coin. Hence it was natural that the two metals should remain more nearly of the same value while several powerful countries adhered to the bimetallic standard than after they had closed their mints to the free coinage of silver and employed the metal only in limited quantities for their subsidiary coinages.

Upon the market for silver bullion the closing of many mints to free coinage produced a marked effect. It was not merely that the market for bullion was narrowed, but that the old relations were severed between the existing stock of coin and the new bullion. So long as important mints were open to the free coinage of silver, the influence of any increase or decrease in the annual production was diffused over the whole existing monetary stock of the

free-coinage countries. A deficiency of silver bullion for industrial purposes, or for a new coinage, could be supplied from the stock of more than $1,000,000,000 in silver money in use in the world in 1873. When almost the entire volume of existing silver money, on the other hand, came to be kept at par by government control, and its bullion contents remained continuously below par, the silver entering the market from time to time represented almost the entire visible stock subject to market conditions. If the new supply of bullion was small, its price rose because it was not controlled by the great reserve fund of the metal in coin; if the new stock was large, its price fell because it found no check in the opportunity to offer the metal for free coinage at the mints. One of the great merits of the metals as money is the fact that the production of any one year forms but a small fraction of the existing stock. The product of previous years remains a permanent part of the stock on the market, because coin can be converted into plate and plate at will into coin. The cost of production, therefore, or the value of the product of a given year, is subject to the powerful steadying force of the whole stock.

This regulating influence of the existing stock ceased to operate when silver was no longer freely coined. Every day that the metal was offered in the London market it became the football of speculation, because the supply there offered was, in a sense, almost the entire visible supply, instead of a small fraction of it, as under previous conditions. The stock of those countries which remained on the silver standard—British India, Mexico, and China—remained nominally a part of the common stock in the market, but even this influence was felt feebly in the minor fluctuations of the price in London, because these countries were so largely under the domain of custom rather than competition.

The effects of this change in the market position of silver were intensified by changes in methods of production. After

it became unprofitable to work the poorer silver-mines in gold countries, because of the great fall in the gold price of silver, a large amount of silver continued to be mined as a by-product of copper, lead, and zinc. This supply, coming continuously upon the market, it was necessary to sell as rapidly as it was produced, since the large capital which would be required to hold it, and the almost continuous decline in its gold price, discouraged any project for withholding it for more favorable market conditions.[1]

The most obvious evil resulting from the fluctuations in the gold price of silver bullion, which attracted the attention of the commercial world, was "the dislocation of the exchanges," or the rupture of par of exchange between gold and silver countries. This means, in less technical language, that it became no longer possible to calculate with any certainty—or even within any definite limits, however wide—the degree to which the money of the silver countries would depart from its old relative value to the money of the gold countries. This was designated the rupture of the par of exchange, because operations between foreign countries are carried on through the foreign exchanges, and where the standard money is of the same metal the cost of conversion of one currency into the other represents only the delay and expense of shipment. The effect of this rupture of the par of exchange upon countries thus deprived of a common monetary standard was set forth by the British Gold and Silver Commission as early as 1888, before the fluctuations in the gold price of silver had attained anything like the range of later years. They said:[2]

[1] "As it is known that silver is being shipped with great regularity, and as the history of the last thirty years shows an almost continual fall in the price of silver, it has been a somewhat safe speculation to sell 'futures' at lower prices. This fact places the seller of 'futures' in a position to be interested in the constant fall of silver and to work for it."—Memorandum of the Mexican Commission, in Report of the Commission on International Exchange, 1903, p. 194. [2] Sen. Misc. Doc. No. 34, 50th Congress, 2d Session, p. 40.

"There is no common measure of value; the metal composing the standard in one country is little more than merchandise in the other; and many of the advantages of money as a means of facilitating trade are thus curtailed. This inconvenience is reduced to a minimum, or disappears altogether, if the value of the two metals is comparatively stable; but it is urged that if to the difference in standard is added the uncertainty of variations in the relative value of the two metals, a serious impediment to trade is established."

How serious is the influence of such conditions on trade was thus stated by Walker in his discussion of the subject in 1896:[1]

"Such fluctuations in the relative values of the two money metals continually involve international trade in embarrassment and disturbances of a most serious character; and often reduce it to mere gambling. Without some tie which can hold the two metals at least near to each other, during the time between the manufacture and sale of commodities and the receipt of the proceeds, the producer in a gold country can never tell for how much silver he must sell his goods in order to make himself whole and perhaps win a profit; the producer in a silver country can never tell for how much gold he must sell his goods in order to make himself whole or perhaps win a profit. The range of possible losses or possible gains from this source are such as to be altogether out of proportion to the range of ordinary chances of industrial and commercial enterprise."

As soon as the disturbing influence of the rupture of the part of exchange between the gold countries and the silver countries began to be felt, discussion began as to its ultimate results. The natural tendency of the new conditions was to increase the command of a given amount of gold over labor in a silver country. This would not have

[1] *International Bimetallism*, p. 139.

been the case if wages in silver countries had changed automatically with the fall in the value of silver, so as to remain constant in ratio to wages in gold countries. But under normal conditions, even if such adjustments occur ultimately, neither wages nor prices conform at once, even in advanced countries, to change in the monetary standard. Still less has this been the case in the silver-using countries, where the principles of competition act much less efficiently than in the gold countries. This condition naturally led to the belief that a falling standard would permit slight reductions in gold prices sufficient to command foreign markets, and thus afford an opportunity to the silver countries for increasing their exports, with the resulting benefits which usually accompany expansion of trade.

There were strong hypothetical reasons for believing that these tendencies would prevail, if it were true that the producer could obtain labor at the old wages in silver.[1] If he continued to sell at the old gold price he would find, for instance, if silver declined ten per cent., that an unearned profit of this amount over and above his usual profit was left in his hands. If he found that competitors in gold countries were controlling the market, it was in his power to cut under their prices by throwing away a part of the profit due to the decline in silver, while still retain-

[1] How these conditions have operated in Mexico is thus set forth by a careful observer: "The progressive lowering of wages as expressed in terms of gold thus gives a margin of profit so long as silver falls faster than the wage of skilled labor rises, a condition which has generally existed for a number of years, because even in the factories, where competition for skilled hands makes the labor-cost tend to rise as the prices of the manufactured articles go up, it is several years after a severe fall in silver has taken place before any perceptible effect is produced upon wages. The stimulation thus induced has, however, not been a healthy one, even from the standpoint of the industries in question, and it has been most baneful for the rest of the country."—Morrell W. Gaines, "Effects of the Silver Standard in Mexico," in *Yale Review* (November, 1903), XII., p. 285.

ing a large part of it. Upon the belief that this would be the course generally pursued by exporters from silver countries, and that they would thereby greatly increase their market, was based the fear that in certain lines of manufactures they would destroy competitors in the gold countries, or, at least, impose upon them the necessity of sacrificing profits or reducing the wages of labor. Some of these consequences appeared to be suffered by certain industries in Great Britain in their competition with the corresponding industries in British India and other silver-using countries of the East.

It was even contended in some quarters that low gold prices abroad, caused by the fall in silver, tended to reduce gold prices in gold countries. This might have been true if the export trade of gold countries to silver countries was a large part of their total export trade, upon the theory of equilibrium in the value of products exchanged.[1] The real difficulty in the case of those industries which suffered most appeared to be due, however, to the artificial stimulus given by the progressive fall in cost of production, which caused the creation of a volume of products exceeding effective demand, and by special tariff legislation. Thus it was declared by a committee of the Manchester Chamber of Commerce, in 1888, that the special duty levied in British India on English yarn "so assisted in stimulating the trade that more mills were built than could profitably be employed, as shown by a fall of nearly 40 per cent., on the average, in the shares of nineteen principal mills in Bombay during the six months ending March, 1885; and at the end of that year 35 out of 52 mills paid no dividend."[2]

[1] In view of the declining tendency of gold prices, it is declared by Helm that "the endurance of the English producer in the contest with the Indian buyer over the question of who is to bear the brunt of the fall in exchange, has generally proved less effective than that of the latter."—*The Joint Standard*, p. 141.

[2] Quoted by Helm, p. 147.

After a generation of almost steady decline in the gold price of silver, however, a survey of the influence upon the silver countries of the rupture of the par of exchange does not indicate that large benefits have been derived by these countries from their monetary policy, or that they have even derived from it the benefits which, upon *a priori* reasoning, might have been expected. The countries which adhered longest to the silver standard after 1873 were British India, China, and Mexico. British India, as we shall see, changed her system in 1893, but changed it after her governors had been convinced, by careful examination of her economic condition and trade statistics, that she had not derived essential benefits from remaining on the silver standard.

There are two propositions, which may be considered separately, in examining the actual operation of a declining monetary standard: First, whether such a standard does or does not stimulate exports; second, whether, if such a stimulation occurs, it is beneficial to the exporting country.

Upon the first question the statistics fail to afford evidence of a direct and powerful stimulation of exports under the silver standard. Such increase in exports in British India, in China, and in Mexico, as was shown by the valuations in silver, failed to materialize in an actual increase in gold values. The commission which, in 1893, investigated the subject of introducing a change of system into India, made the following observations on this subject in its report to the British government:[1]

"Although one may be inclined, regarding the matter theoretically, to accept the proposition that the suggested stimulus would be the result of a falling exchange, an examination of the statistics of exported produce does not appear to afford any substantial foundation for the view

[1] Report of the Indian Currency Committee, par. 27. This view was reaffirmed by the committee of 1898.—Report of the Commission on International Exchange, 1903, p. 306.

that in practice this stimulus, assuming it to have existed, has had any prevailing effect on the course of trade; on the contrary, the progress of the export trade has been less with a rapidly falling than with a steady exchange."

In the case of China, the average annual value of the exports rose from £19,242,153 in gold, upon the average of the ten years ending with 1891, to £23,376,360, upon the average of the ten years ending with 1901. Measured in gold, therefore, this increase was only twenty-one per cent. in ten years, or an average of a little more than two per cent. a year. Such increase of exports as occurred, moreover, was largely to surrounding silver countries, like Japan (under the silver standard until 1897), Corea, the Straits, the Philippines, and Hong-Kong. The result, in the opinion of expert observers, was that it could not be claimed "that the decline in the gold value of silver had done anything to stimulate the growth of China's exports to gold-using countries, while, on the other hand, it has not checked an expansion of imports from these gold countries."[1]

In the case of Mexico, also, the increase in the exports, when measured in gold, was small for a country which has developed her natural resources to such an extent as has this republic in recent years. The gold value of the exports from Mexico increased only from $63,328,157, in 1892, to $74,106,200, in 1902, representing an advance in ten years of 18.38 per cent., or less than two per cent. a year.

These figures of the increase in export trade, measured in the gold value of silver, it may be contended do not represent the real increase in the quantity of goods exported. This is the fact, but it involves the additional fact—of cardinal importance in this discussion—that the silver countries have been progressively giving up under the silver standard a larger and larger quantity of the products of their labor in exchange for the products of the gold

[1] Views of officers of the China Association, May, 1903.—Report of the Commission on International Exchange, 1903, p. 259.

countries. It is this fact which has impaired the benefits of any increase of trade which they might have derived from falling exchange, and would tend, if continued indefinitely, to leave them poorer in the end than if their trade had not expanded. In the case of Mexico, careful comparison of the quantities and gold values of some of the principal articles exported showed that six selected articles exported from Mexico in 1902, at a reported value of $10,781,090 in gold, would have been worth $16,951,328 in gold if the unit of weight had retained in 1902 the same value as in 1892.[1]

In the case of China comparison of prices of goods exported in 1903 with prices in 1899 indicated a decline in gold value of £3,369,800, while the cost of imports from gold countries indicated an increase in gold value of £1,950,755, or a net loss on both sides of the account of £5,320,555.[2] The facts, instead of justifying adherence to a silver standard for the benefit of exporters, seemed to justify the pregnant analysis made by the Chinese minister to Russia in 1903:[3]

"A gold standard country is like a man who has accumulated riches to buy grain—if the grain is cheap he reaps the benefit. A silver standard country is like a farmer who has accumulated his grain and holds it for a rise in price—if the price goes down, he suffers."

If this fall in the gold prices of exports were found, on

[1] "The Influence of Falling Exchange upon the Return Received for National Products," argument submitted to the Monetary Commission of the Republic of Mexico, April 18, 1903.—Report of the Commission on International Exchange, 1903, pp. 431–439.

[2] These figures were worked out by J. W. Jamieson, British commercial attaché at Peking, by avowedly employing the same methods as those of the present writer in regard to Mexico.—*Vide* Report of the Commission on International Exchange, 1904, pp. 206–209.

[3] "Memorial to the Chinese Imperial Government," in Report of the Commission on International Exchange, 1904, p. 191.

examination, to apply in a corresponding degree to the exports of gold countries, it would not affect the real return received in commodities by the exporting country. This, however, has not been the case. Upon this point an instructive comparison was made by a financial publication of the export prices of certain products of the United States and the import prices of certain leading tropical products. These statements showed that the export price of products of the United States tended to rise, or, at any rate, not to fall, while the import prices of the articles received from tropical countries tended steadily to fall. The results of the comparison were thus summed up:[1]

"The exports of cotton, wheat and corn for the fiscal year 1902, which were actually valued at $409,275,000, would have brought at the prices of 1899 only $319,232,000, or $90,000,000 less than was actually received. On the other hand, the average import price of coffee dropped from 14.04 cents for the five years ending with 1897, to 6.89 cents for the five years ending with 1902. The corresponding decline in sugar was from 2.47 cents to 2.26 cents, and of tea from 14.10 cents to 12.79 cents. The imports of these three articles into the United States for 1902 were actually entered at the gold value of $134,861,500, while at the prices of 1897 the same quantities would have been entered at $191,078,600. The United States, therefore, obtained these three important tropical products at $56,000,000 less than it would have obtained them at the prices of five years ago, while at the same time obtaining a considerably enhanced price for its own products."

If these figures could be treated as representative, it would appear that over a very short space of time there was a gain to the United States, a gold country, in its trade with tropical countries, of about $146,000,000 in a total trade of $500,000,000. Confirmation of these conclusions

[1] *Wall Street Journal*, February 16, 1903.

is afforded by the economic experience of the South American countries—Uruguay, which is upon the gold standard, having for many years exports surpassing those of the larger and more populous countries of Argentina and Chile taken together while those two countries were upon a silver or paper basis.[1] Undoubtedly, other influences than the depressing effects of the silver standard operated upon relative prices in gold and silver countries, but the conclusions of a committee which carefully investigated this subject seem to be reasonably justified, "that the ability to reduce gold prices afforded by a depreciating standard, whether of silver or paper, tended everywhere to impoverish the economic forces of the countries having such a standard, in their relations with the countries having a more stable standard."[2]

In Spain during the closing years of the nineteenth century a like demonstration was afforded of the futility of falling exchange, even under a paper standard, to stimulate commerce. Exports declined more than fifteen per cent. from 1899 to 1901, even when measured in depreciated paper, justifying the judgment of Lacombe, that an unfavorable exchange was "the conspicuous cause of the impoverishment of Spain and an obstacle almost insurmountable to her rehabilitation by the capital of which she stands so greatly in need."[3]

These conclusions have been the result of very recent investigations, and their influence was only vaguely recognized, if at all, down to a recent date. They illustrate the necessity that—for the benefit of the silver countries as well as the gold countries—steps should be taken to restore the par of exchange which was ruptured when the advanced countries universally adopted the gold standard. In the restrictions imposed by the risks of fluctuation upon

[1] *Con.* Fiamingo, in *Journal of Political Economy* (December, 1898), VII., p. 48.

[2] Report of the Commission on International Exchange, 1903, p. 439.

[3] *Le Change Espagnol*, p. 20.

the investment of capital in the silver countries is probably found the explanation of the failure of their foreign commerce to respond as much as expected to the stimulating influence of falling exchange. They could not find the means for developing their export trade while their monetary system kept foreign capital aloof. This was conspicuously the case in British India and Mexico during the closing decade of the nineteenth century, in spite of the rapidity with which surplus capital was accumulating in the gold-standard countries. The uncertainties of exchange made it unprofitable, if not absolutely hazardous, for the owner of capital in a gold country to invest it in a silver country.[1] How this condition restricts the trade of the gold countries has been thus set forth:[2]

"The rich countries surrender their products to the poor countries and accept promises to pay instead of exacting full payment from the poor countries in their products. These transactions are carried on in a manner convenient to all through the medium of the negotiable securities of joint stock companies. The exporter in the rich country who desires ready money for his goods gets it from the domestic or foreign joint stock company operating in the poor country. The latter company sells its shares and

[1] It was declared by Probyn, in 1888, before the monetary reform in British India: "There is urgent need for the investment of fresh capital in India. Railways are wanted for its development. Its manufacturing power is capable of almost indefinite expansion. Its mineral resources are believed to be vast. Its internal trade is open to immense extension. One witness examined before the Gold and Silver Commission thinks 'that from £15,000,000 to £20,000,000 might be earned as an annual dividend on money in England for investments in silver-using countries, if the money could be protected from the effects of this uncertainty.'"—*Indian Coinage and Currency*, p. 3.

[2] Arguments submitted by the American Commission on International Exchange, 1903, p. 101. The statistical and political aspects of this subject are more fully discussed by the present writer in *The United States in the Orient; the Nature of the Economic Problem.*

bonds in the exporting country, and applies the proceeds in money to payment for what it buys in machinery, raw materials, and the means for maintaining laborers. Thus, in effect, the rich country lends its capital in the form of products to the poor country, exacting only an annual interest, and not the principal, in return. The great resources of the manufacturing capitalistic nations are thus put at the command of the undeveloped countries, where they are capable of yielding the largest returns and the greatest sum of benefits to all concerned in the transaction."

Already this evil of the dislocated exchanges, in its influence on investments, was a subject of discussion in the Report of the British Gold and Silver Commission in 1888, when silver had fallen in gold value from an average of $59\frac{3}{16}$ pence, in 1873, to $42\frac{7}{8}$ pence in 1888. The evil became much more acute in later years, especially after the drop from the average quotation of $27\frac{3}{16}$ pence, in 1901, to $24\frac{1}{16}$ pence in 1902. Under the conditions which then prevailed even short-term loans could not be made safely in silver countries by capitalists in gold countries.[1]

The growth of these evils in the trade between gold-standard and silver-standard countries began to attract attention soon after the general adoption of the gold standard in Europe and the United States. That they called loudly for a remedy was denied in few quarters. As to the nature of the remedy, and the degree of sacrifice which might properly be made by the gold-standard countries in order to restore stability of exchange with the silver coun-

[1] "Several hundred million dollars of American and European capital is awaiting investment in Mexico as soon as that country gets on a gold basis. Mexican bankers could borrow money in Paris, Berlin or Brussels in large amounts and make seven, eight or ten per cent. on the investment, but they dare not do it, because if it was loaned on short time and they were called on to repay it the fluctuations in silver might more than wipe out all their profit."—Report of the Commission on International Exchange, 1903, p. 100.

tries, there were wide differences of opinion. For many years there was a persistent, in some respects well-reasoned and eminently respectable, effort on the part of economists and statesmen to bring about the correction of the evil by a return to the policy of the double standard, under such a binding arrangement among commercial nations as would tend to insure its successful operation. These efforts failed, because they were contrary to the logic of events and were confronted by practical difficulties which proved insurmountable.

It was then, at the beginning of the twentieth century, when fluctuations of exchange, growing constantly more violent, threatened to paralyze trade between the gold countries and the silver countries, that a new method was sought for bridging the difficulty and was first applied in a definite scientific manner by the United States in their island dependencies of the Philippines. Of both these efforts to solve the problem—by international bimetallism and by the gold exchange standard—it will be the mission of the next two chapters to speak.

V

THE EFFORT FOR INTERNATIONAL BIMETALLISM

Importance of securing agreement among leading nations—Difficulties in the way—Tendency of the cheaper metal to drive out the dearer—Operation of the principle of substitution—Too much reliance placed by bimetallists on statute law—Difficulties caused by differences in national ratios and by the decline in silver—Efforts of international conferences prove futile in 1878, 1881, and 1892—The mission of Senator Wolcott in 1897.

TO those whose business relations or economic interests brought home keenly the effects of the rupture of par of exchange between the gold and silver countries, after the fall in the gold price of silver became serious, the project of bringing about bimetallism by international agreement strongly appealed. Such a project required an agreement among leading commercial nations that their mints should be continuously open to the owners of silver bullion for its conversion into coin at a fixed ratio to gold. It required, moreover, that this ratio should, in all the nations entering into such an agreement, be exactly the same, since, if different ratios were adopted, with the facility of communication and transportation now prevailing, silver would be offered at that mint by whose ratio it had the highest value and withheld from those mints by whose ratios it had a lower value. Difficulties presented themselves of a practical character which prevented the accomplishment of any international agreement, and eventually turned scientific thought towards other solutions of the problem of exchange. For nearly thirty

years, however, the literature of bimetallism formed an important part of the discussion of monetary science, and the theory has been abandoned only reluctantly by some of those who now admit that the object is practically unattainable.[1]

It has been said already that the theory of international bimetallism is one which has, thus far, not been fully tested in practice. Bimetallism in a single nation, under the defective conditions of communication and of monetary experience of a century or more ago, although it might throw light on the subject, could not afford such a test in a conclusive manner. As Walker truly suggests, the various nations of Europe "were trying to keep money of both metals in circulation within their own borders, without having any formed theory regarding the causes which determine the commercial value of one metal in terms of the other, or regarding the power of government to influence that relation."[2] If the requirements of true bimetallism extend to the equal esteem by the public of the two metals at their coinage ratio, so that at any given time one should be as freely brought to the mint as the other, it may be said that bimetallism has never existed for any appreciable length of time in any country. Darwin declares:[3]

"All that is proved, in my opinion, is that without international agreements there was in past times a perpetual ebb and flow of the precious metals between

[1] Thus Pierson, the leading economist and practical financier of the Netherlands, after defending the theory of bimetallism, declares: "Unfortunately, however, it must be admitted that, after the great fall which has taken place in the value of silver, the whole controversy regarding bimetallism has more theoretical than practical importance."—*Principles of Economics*, I., p. 581.

[2] *International Bimetallism*, p. 60.

[3] *Bimetallism*, p. 137. Helm, another scholarly advocate of bimetallism, says that the scheme for "a broad international agreement is a new thing in the world."—*The Joint Standard*, p. 23.

countries with different legal ratios, and that this led to constant changes in those legal ratios in order to endeavor to stop this movement. The experiment of legalizing the same ratio in all countries was never tried."

There is, therefore, no monetary experience to demonstrate the theory of international bimetallism except such partial demonstration as may be derived from the study of conditions in which the concurrent circulation of the two metals over limited areas has broken down—conditions which bimetallists themselves admit have not afforded a satisfactory and adequate test of their theories.

The first condition of true bimetallism is that the mints shall be open to the coinage of either metal at the legal ratio whenever tendered by the owner. This gives the holder of bullion the power to convert it into standard coins without limit in amount. Hence the value of the coin expressed in money is the same as the value of the bullion which it contains, except for such differences as may be due to charges for coinage. So long as both metals are thus converted freely into coin, a true system of bimetallism exists. It is this system which bimetallists believe would be realized in practice, if the mints of commercial nations were thrown open at an agreed ratio to the free coinage of both gold and silver.

It is a vital requirement of the theory of bimetallism, however, that the coins of both metals shall be legal tender for debts, at the option of the debtor. The law, in other words, assumes not merely to require the performance of a specific contract, as when it enforces a promise to pay one hundred gold dollars, but to sustain the right of the debtor to exercise an option in the form of his payment. If, that is, a debtor has contracted to pay one hundred dollars, the state declares, under a bimetallic law, that he may select, in making the payment, the coins of the metal which he prefers. Inevitably, if there is any difference in their value, he will prefer the cheaper. Hence, if a bimetallic law fails to maintain a real re-

lationship between two metals at the ratio fixed by law, it produces in effect the result described by Farrer:[1]

"In every case one or other of the two—the cheaper for the time being—has become the standard coin in use; promises to pay have really been promises to pay that coin; and if in the course of events the other metal has become the cheaper, so as to make it better for debtors to pay in coins of that metal, the standard in use has altered from one metal to the other."

That this alternation between the use of one metal and the other can be cured by creating an unlimited demand for both metals for coinage purposes is the essence of the theory of bimetallists. They believe that silver and gold would be given a fixed and continuing relationship to each other if they were accepted at this relationship at the mints of the leading commercial nations without limit in amount. They contend that there would be no outlet for either metal at any value which departed from the legal ratio, and that they could not, therefore, rise or fall materially in their relationship to each other. The contention of the more scholarly of the bimetallists on this point is well summed up in the Report of the British Gold and Silver Commission:[2]

"On the assumption of an international agreement between the principal commercial countries, the effects of a bimetallic system so established would be universal, and there could not be any appreciable difference between the relative value of the metals in the open market and their legal ratio. On this hypothesis the demand for gold for purposes of currency from the other countries of the world could not be considerable; and consequently the only purposes for which the gold could be required in considerable quantities would be for industrial use or for hoarding; and the demand for these purposes when compared with the annual production and the existing stock

[1] *Studies in Currency, 1898*, p. 44.

[2] Sen. Misc. Doc., No. 34, 50th Congress, 2d Session, p. 60.

of metal would not be sufficient to cause it to disappear from circulation."

There is an element of truth in the bimetallic theory—that the widening of the market for any product, whether iron or wheat, gold or silver, tends to raise its value in relation to other things and to narrow the range of variations in its value. Up to a certain point the experiment of receiving silver at the world's mints at a fixed ratio would tend to give it a definite value in gold; but it could not permanently assure this value. It is, indeed, declared by some of the most thoughtful advocates of bimetallism that their theory does not demand absolute fixity in the relation of value between the two metals. Thus Lord Aldenham declares of Giffen, that in setting up such a requirement:[1]

"He has invented a bimetallism of his own, and thus he can show without difficulty that his premises being admitted his conclusions would follow. This pseudo-bimetallism is one where gold and silver are always in constant and equal circulation in a country at the same time, and where one can always exchange gold and silver one for the other as a right. No doubt he would not recognize this as his definition of bimetallism, and he does not need to be told that it does not, and never did, exist."

From this point of view the *agio*, or premium on gold (which is admitted to have existed from time to time under the policy of bimetallism in France), is treated as of no importance until it reaches the point of actually breaking down the bimetallic system.[2] That the action of France in postponing the delivery of coined silver after deposits of bullion, and finally suspending free coinage, caused the

[1] *A Colloquy on Currency*, p. 168.

[2] "The agio is only concerned with export of bullion, coined or uncoined, whether in the course of trade or for the convenience of travellers. Internal commerce is in no way concerned with it." —Aldenham, p. 63.

agio, instead of being caused by it, is the contention of the bimetallists. But this theory flies in the face of the fact that there was a growing preference for gold, and that it was this preference which was depressing silver to the point that France could not, with safety, keep her mints open to both metals without danger of seeing her gold and silver coins part company in value.

One of the most attractive of the arguments in favor of international bimetallism is based upon the theory of substitution, by which the preference for the metal which happened for the moment to be cheaper would so shift the volume of demand from the dearer to the cheaper that substantial equilibrium would be maintained. It has been seen that the market for silver bullion was narrowed when free coinage was suspended by the countries of the Latin Union, and that the result was to greatly increase the fluctuations in the market-price of bullion. From these facts has been deduced by bimetallists the theory that the use of both metals would afford a more stable standard of value than the use of a single metal, because particular irregularities in production of and demand for one would be compensated by the shifting of demand from one metal to the other. If this substitution actually worked in practice so that the two metals remained in concurrent use, then changes in prices of merchandise, so far as they might be influenced by the quantity of money, would be spread over a larger surface, and would be less violent, even if more frequent, than under a single standard of either metal.[1] The assumed law of the actual

[1] The effect upon debtors and creditors, if this theory worked out in practice, is well put by Emile de Laveleye: "If a standard of a single metal is more variable than one of two metals combined, I know the number of grammes of the single metal which I shall receive, but I am not as well informed of the purchasing and debt-paying power which they possess, which is by far the most important. Under the régime of bimetallic money, I cannot anticipate whether I shall be paid in gold or silver. But if, whether it be gold or silver, I am equally able to buy any merchandise, and

operation of this theory is known as the law of the compensatory action of the two metals. As set forth by Darwin, its operation, in case gold coins rose in value slightly above the coinage ratio, would be as follows:[1]

"Gold coins would be melted down and sold, and this process would reduce the price of gold bullion by throwing more of that metal on the market; this cheapening process would be so rapid that an equilibrium would immediately be re-established; the two metals would continue to circulate in the currency at the legal ratio, and this legal ratio would again govern the bullion market. In fact, in the opinion of bimetallists, this process, or something equivalent to it, would take place so quickly that no depreciation of either metal could in reality be observable in the market."

Seductive as this theory is in this form, it has not worked out in practice in a manner to maintain equilibrium between the metals. The force of its compensatory action was undoubtedly felt in France and other countries after the supply of gold had been increased by the opening of the California mines; but so far as the law of substitution acted under these conditions, it tended to drench with gold the countries whose mints were open to the free coinage of both metals and to draw away their silver to countries where silver was the only legal tender.

It has been repeatedly declared that France, by exporting her silver and receiving gold, acted on this occasion, in the apt expression of Chevalier, "as a parachute for the fall of gold." That France rendered some service of this sort may be granted, but it is doubtful if she or any other nation would care deliberately, under modern conditions, to offer herself as a vicarious sacrifice for the

pay any debt, and if at the same time I am better able to estimate its future purchasing power than of one or the other metal alone, then the basis of contracts will be more certain."—*La Monnaie et le Bimetallisme Internationale*, p. 31.

[1] *Bimetallism*, p. 30.

maintenance of the monetary system of other countries. What happened in France from 1850 to 1865 was the introduction of a gold currency in place of a silver currency —a change which was in accord with the modern evolution of the most economical and efficient form of money. What would be asked of France if bimetallism at the ratio of 15½ to 1 were to be restored, would be that she should act as a parachute for the fall of silver, or rather as a lever for raising the value of silver, by parting with her gold and accepting silver from nations preferring gold. One of the passages of the French official inquiry of 1872, after referring to the great influx of gold and outflow of silver, after the California gold discoveries, demanded:[1]

"Will the opposite evolution be as simple, and will the public lend itself voluntarily to the restoration of silver and the exodus of gold? Assuredly not, and a change, the reverse of that which has occurred during the last twenty years, would be sure to excite the most lively repugnance."

The bimetallic theory sought to weld into a homogeneous whole two commodities which were not homogeneous. It has been at just the crucial point of establishing permanency of relationship between the two metals that the experiment has broken down when tried. The reason was clearly defined by an American writer more than sixty years ago:[2]

"Between gold and silver, therefore, there is not any fixed proportion as to value, established by nature, any more than there is a fixed proportion established by nature, between lead and iron, or between wheat and tobacco. Nature does not say, that one ounce of gold shall always be worth so many ounces of silver, any more than she says, that a certain number of pounds of iron shall always be worth so many pounds of lead, or, that a bushel of wheat shall always be worth a fixed quantity of tobacco."

[1] Willis, p. 6.

[2] Raguet, p. 219.

This reveals the crux of the difficulty. Using one article as a substitute for another does not make them absolutely homogeneous. Because corn can be used when wheat is scarce, or copper may be used in place of iron, may tend to steady the price of one in relation to that of the other, but it does not make steadiness of relationship absolute and continuous. The great error of the bimetallic theory has been in disregarding the differences of gold and silver by seeking to fuse them into a homogeneous mass. The experiment would fail, just as a similar experiment in regard to wheat and corn would fail, because the two articles are not the same, the ratio of increase of supply constantly varies, and the demand varies, in spite of bimetallic laws, according to the silent but forceful evolution of the preference in each community for the form of money best adapted for doing its work.[1]

It is undoubtedly true that under a bimetallic system the scarcity of one metal would be compensated to some extent by the superfluity of the other, just as a dearth of corn might be supplied by the diversion of demand to the existing stock of wheat; but from this law of substitution it by no means follows that a rigid fixity of relationship can be established between the two cereals or the two metals. As Kinley well points out, an agreement for treating gold and silver upon an equality at the mints would prove fragile when the advanced countries discovered that they were receiving into their coinage system too much of the metal of low utility and losing that of higher utility.[2]

[1] Sir Robert Edgcumbe insists that the analogy between money metals and commodities is a fallacy, because money is the creation of law, and "when gold and silver are used for currency purposes, the large amount so required controls the value of gold and silver passing as commodities."—*Popular Fallacies Regarding Bimetallism*, p. 21. But it is precisely because gold is preferred to silver as *money* in advanced commercial nations that the effort has failed to make them by law a homogeneous mass.

[1] "If a country which was poor and economically backward at

It is to be feared that, under such circumstances, it would be found impossible in practice to keep the two metals at a fixed relation to each other. Gold, in departing from the official ratio, might still be used at a new ratio based upon its commercial value, just as the English guinea, when it tended to drive silver out of circulation, was rated down by act of Parliament to twenty-one shillings. As the metals enter into foreign trade as bullion, and only rarely as coins, and as gold would probably continue to be the chief money of international exchanges, even under a bimetallic system, it could easily be employed in such traffic at its real commercial ratio and without reference to the legal ratio.[1]

One of the chief flaws in bimetallic reasoning was in attaching too much importance to statute law. Because existing monetary systems depend upon law, such extreme definitions of money have been given as that of Cernuschi, "Money is a value created by law to be a scale of valuation and a valid tender for payments."[2] More moderate bimetallists have accepted the view which is thus expressed by Horton:[3]

"In every nation, arising from the mere fact of its or-

the time of the adoption of the system became rich and economically strong, its people would need, and would try to secure, the metal of higher monetary utility. But the international agreement would stand in its way, and, in a measure, check its industrial progress. Such a country would be impelled to break away from the system, and adopt the metal best suited to its changed condition."—*Money*, p. 308.

[1] "Its use in the payment of international balances and for shipment between different cities in the same country would not be rendered more difficult or less convenient by the fact that its bullion rather than its tale value must be considered. In fact, in international payments its bullion value alone counts, no matter what may be the monetary system, and in great financial institutions like the Bank of England coins are always received by weight in order to guard against loss from abrasion."—Scott, p. 308.

[2] *Nomisma; or, Legal Tender*, p. 7.

[3] International Monetary Conference of 1878, p. 748.

ganized existence, there is an universal and persistent need to employ something not merely as a medium of exchange, but as the legal instrument of valuation and legal means of payment, as lawful money and legal tender. It is legislation which directs this universal and persistent force upon this or upon that commodity, and in marshaling the force of human self-interest upon its side it provides effective means for the execution of its edicts. It thus affects the demand for the commodity selected."

That the demand for one metal or the other can be thus affected by legislation is hardly capable of denial; that it can be absolutely controlled is more disputable. The defect of the bimetallic project was that it attempted to do too much through a system of machinery which was inadequate for the purpose, and attempted to do this, moreover, in opposition to commercial tendencies instead of following such tendencies. Statute law may do much; it cannot do all. In self-governing states and on most subjects statutes are but the consecration in concrete form of conclusions long since reached by public opinion. That intelligent public opinion was veering steadily more and more towards gold as the standard money metal has been already shown. That this tendency created difficulties in the relations between the gold countries and those still lingering upon the silver basis has also been seen.

The attempt to cure the evil by opening the mints of the advanced nations to free coinage of silver was an effort to create by force of law an outlet which had been closed by the preference of commerce. To create an artificial and unlimited market of this sort would have imposed a strain upon the law-making power under which it would almost certainly have broken down. We shall see hereafter, in discussing the gold-exchange standard, that dealing with the subject from another side—that of adapting the supply of silver coins to the commercial demand for them—obviated most, if not all, of the evils for which international bimetallism was long considered the sovereign and

sole remedy. The attempt to produce absolute rigidity in relationship between the two metals, while no control was exercised over the supply of either, was opposed to the principle so well defined by Chevalier:[1]

"The value of gold and that of silver depend, in fact, to a large extent upon circumstances peculiar to each of them, they being identical in this respect with iron or copper, bread or meat. It would, doubtless, be an exaggeration to say that they are absolutely independent of each other; for whenever two substances have a common use, the value of one exercises a certain influence upon that of the other; but between gold and silver this relation is not closer than that between corn and wine, or between bread and meat."

Aside from doubts as to the theoretical operation of a system of international bimetallism, two practical obstacles of a serious character always presented themselves to prevent a preliminary agreement. The first was the question of the ratio to be adopted between gold and silver; the second was the doubt whether the contracting parties could be trusted to permanently adhere to an arrangement. The project for an international agreement never reached the point where these difficulties were officially considered. Their presence, however, was often referred to and strengthened the conviction derived from other objections among European statesmen, that a workable international agreement was unattainable.

Upon the question of the ratio there was not only the difference between existing coinage ratios to be dealt with, especially the difference of more than three per cent. between the ratio of the Latin Union ($15\frac{1}{2}$ to 1) and the ratio of the United States (16 to 1), but the still more important question whether in framing a new agreement any of the old legal ratios should be taken or some approximation to the market ratio should be preferred. Any change in the

[1] *On the Probable Fall in the Value of Gold*, p. 24.

ratio of a given country might involve sending to the melting-pot its entire silver coinage. This might be avoided by selecting that ratio which gave the highest nominal value to silver, but this would have been contrary to the steady downward tendency of silver bullion in the market. If the ratio of the Latin Union were adopted, it would compel the United States to remint their great stock of silver dollars issued at the ratio of 16 to 1. Otherwise these pieces would flood the mints of France, where the same amount of silver would coin into a larger number of equivalents of the unit of gold. If a bimetallic agreement accomplished its full purpose of raising silver bullion absolutely to the legal ratio, then it would be worth more than the value put upon it by the American mint laws, the coins in circulation would possess a higher bullion value than the value expressed on their face, and they would disappear from use.

If the suggestion were adopted, which to moderate bimetallists seemed the more reasonable one after the great fall in silver, that a closer approximation to the market ratio should be made in adopting a new ratio for an international monetary union, then every country having any considerable volume of silver coin issued at the old ratios would be subject to a large expense in reconstituting its currency. In the case of France it was estimated that a loss of about $230,000,000 would fall upon the money value of the silver coinage in bringing the metal contents of the five-franc pieces up to a ratio of 35 to 1.[1] In the case of the United States, with an outstanding coinage of standard silver dollars in 1892 amounting to $360,000,000, a change of the ratio to 35 to 1 would have caused a similar shrinkage of about $200,000,000. It might, indeed, be argued that such a juggling with the face value and the market value of the medium of exchange did not involve a real economic loss to the country; but this is not an argument which would

[1] Darwin, p. 51.

weigh strongly with responsible ministers if compelled to include in the budget an appropriation for so large an amount or provision for a public loan incurred to cover the nominal loss.[1]

The question of the permanency of an international bimetallic agreement would not, however, be wholly one of economic theory nor even of national good faith. It would be in part a practical question of the fiscal resources and political policy of the contracting powers. As it is admitted by moderate bimetallists that the co-operation of the leading nations would be necessary to the successful maintenance of a fixed ratio between the metals, in order to widen the market for silver, it would follow that the sudden contraction of this market by the withdrawal of any leading nation from the agreement would have a disturbing effect on the ratio. Would such a withdrawal be probable? And what might be the inducements for it?

We may dismiss for the moment the economic reasons which might lead a nation to abandon the bimetallic union from choice, to consider those only which might make withdrawal compulsory. The simplest type of such reasons would be the necessity of suspending specie payments. This has happened too often in monetary history to be treated as a negligible factor. Such a possibility is a standing menace to any project for international coinage which makes forced legal tender of any form of money which is not of full intrinsic value. It might indeed be argued that with the ratio fully established, suspension of specie payments would have an effect no more adverse to silver than to gold, since both would be expelled from the country which fell to a paper basis, and each would flood equally the channels of circulation of the

[1] Among the expedients which have been suggested for getting over the difficulty is the continuance of the old coins as tokens at their face value—"that if new pieces are coined, the old five-franc pieces should remain and circulate side by side with the others." —Lord Aldenham, p. 41.

specie-paying countries. This might theoretically be the case if the bimetallic union had been proved by many years' experience to be capable of maintaining silver in equal esteem with gold at the coinage ratio; but it is precisely this point which a union would be formed to establish and which would be gravely threatened by early withdrawals. If it be seriously maintained that such withdrawals, by suspension of specie payments, would not threaten the legal ratio, then by a process of elimination of one country after another we should reach the conclusion that the ratio could be maintained by any single country which offered the hospitality of its mints equally to both metals. But this experiment has been tried; the republic of Mexico has been the last to admit its futility.

If a bimetallic agreement had been inaugurated in 1860, the United States would have abandoned it in 1861, by the suspension of specie payments due to the Civil War, and remained outside of it for eighteen years; Russia would have withdrawn in 1863 and returned only in 1897; Austria-Hungary would have been in a chronic state of suspension after 1867; France would have been out of the union from 1870 to 1875; Italy would have withdrawn in 1866 and returned permanently only in 1902, and Spain would have been a broken reed to the union continuously after 1891. These instances of the suspension of specie payments show how powerless, even if they had the will, would these great states have been to maintain a definite ratio between two metals which depended for its maintenance upon their affording a continuing and unimpeded market for both metals as legal-tender money.

Whether there would be from the outset, in case of an international bimetallic agreement, a sincere determination to maintain such an agreement would in itself be important, quite apart from the unavoidable dangers of specie suspension. So long as the preference for gold prevailed in the commercial community, no important state would view without disquiet the decline of its gold stock

and the increase of its silver money. As Darwin points out, in opposing too low a ratio for an international agreement:[1]

"Greater facilities would, perhaps, be given for the coinage of gold rather than for the coinage of silver; and this might be done in ways difficult to control by international agreement. The fear that other nations were doing these things would make every government suspicious, and this, in itself, would be an element of instability. If any one of the great powers had either hoarded a large amount of gold, or had in any way attracted an unusual supply of that metal within its dominions, its government might be tempted to adopt monometallism, in the hope that this action would break up the Bimetallic Union and destroy the bimetallic tie, and that this would lead to an increase in the value of their gold currency and reserves; this would be especially probable at the commencement of a war, when one or other of the combatants might think they could thus gain a distinct advantage over their opponents."

That difficulties of this sort would render unattainable an enduring international agreement for the concurrent coinage of gold and silver became only too apparent with the failure of repeated efforts by diplomacy and international conferences to reach such an agreement. Already, almost as soon as the gold standard was adopted by Germany in 1873, a reaction broke out against the separation of the two metals. France continued to be prosperous under the limping standard, and her most distinguished bimetallists—Cernuschi, Léon Say, Wolowski, and others—resisted the demand of the gold standard advocates—Chevalier, Parieu, Bonnet, and Leroy-Beaulieu—that France should abandon silver as full legal tender.[2] In England the disturbance of the ratio between the pound sterling and the silver rupee of British India was quick

[1] *Bimetallism*, p. 103. [2] Russell, p. 144.

to attract attention, and in Holland in 1876 the initial steps were taken which ended in the International Monetary Conference of 1878.

In the United States, Congress had already by a joint resolution of August 15, 1876, appointed a joint committee of eight members, known as the "Silver Commission," which submitted an elaborate report on March 2, 1877. The majority of this commission reported in favor of "the restoration of the double standard and the unrestricted coinage of both metals."[1] The other three members did not favor free coinage by the United States without the concurrence of other nations. The United States took the initiative in proposing an international conference, which met in Paris on August 10, 1878.

The German government refused from the outset to participate in the conference, because Germany had just established a gold standard. Great Britain accepted only upon the assurance that the subject of an international coin should be considered, and her delegates declared, through Mr. Goschen, that they were bound by their instructions to vote for no proposition compromising the gold standard.[2] The delegates of Belgium and Switzerland declared themselves in favor of gold, and the conference broke up without any practical results. The majority of the delegates of the European states presented resolutions declaring "that the question of the restriction of the coinage of silver should equally be left to the discretion of each State or group of States," and that the differences of opinion which had developed "exclude the discussion of the adoption of a common ratio between the two metals."[3] The American delegates—Mr. R. E. Fenton, Mr. W. S. Groesbeck, General Francis A. Walker, and their secretary, Mr. S. Dana Horton—filed a protest against this decision.

[1] Reports of the Silver Commission of 1876, Sen. Report 703, 44th Congress, 2d Session, p. 126. [2] Russell, p. 203.
[3] International Monetary Conference of 1878, p. 163.

A second attempt to form a bimetallic union was made in the summer of 1881 by concurrent invitations of the American and French governments. Their delegates, through Mr. Evarts, lately Secretary of State of the United States, again urged the formation of an international agreement, and the delegates of the European states voted "that there is ground for believing that an understanding may be established between the states which have taken part in the conference; but that it is expedient to suspend its meetings." An adjournment was taken until April 12, 1882, but the conference was never reassembled.[1]

A third attempt to secure an international agreement was made at the suggestion of the United States in 1892, but the invitations were limited to the purpose of securing a larger use for silver. The British government was unwilling to enter a conference with the declared purpose of restoring the free coinage of both gold and silver, and the form of the invitations was adapted by the United States to their position, in order to secure their participation in the conference. The delegates of the United States were Senator Allison, of Iowa, Senator Jones, of Nevada, Representative McCreary, of Kentucky, Mr. Henry W. Cannon, of New York, formerly Comptroller of the Currency, Professor E. Benjamin Andrews, President of Brown University, and Mr. Edward O. Leech, Director of the Mint. Several propositions for the purchase and coinage of silver on government account in limited quantities were submitted to the conference,[2] but it was again found that

[1] International Monetary Conference of 1881, p. 506.

[2] The proposition most discussed was that of Lord Alfred de Rothschild, one of the British delegates, that if the United States would continue their purchases under the Sherman law, "the different European powers should combine to make certain yearly purchases, say to the extent of about £5,000,000 sterling annually, which purchases to be continued over a period of five years at a price not exceeding 43 pence per ounce standard; but if silver should rise above that price the purchases for the time being to be

an agreement could not be reached, and an adjournment was taken on December 17, 1892, until May 30, 1893. The German delegates were unwilling to bind their government to the policy of a second meeting, and the events of the winter were so little favorable to bimetallism that President Cleveland, who entered office in March, did not feel justified in seeking a reassembling of the conference.

Still another attempt was made in 1897, in a less formal way, to secure the assent of certain leading countries to the bimetallic system. The proposition was narrowed down to a tentative agreement between representatives of France and the United States, that they would throw open their mints to free coinage, if the government of British India would take the same step, and afterwards a sufficient number of other nations should join to insure the maintenance of parity.[1] Although the project received a certain measure of support from the India office in London, it was rejected by the Government of India in a despatch of September 16, 1897, upon the ground that it would "be most unwise to reopen the mints as part of the proposed arrangements, especially at a time when we are to all appearance approaching the attainment of stability in exchange by the operation of our own isolated and independent action."[2]

immediately suspended."—*Conférence Monétaire Internationale, 1892, Procès Verbaux*, p. 48.

[1] *Vide* address of Senator Wolcott, one of the American commissioners, in the United States Senate, January 17, 1898.

[2] Report of the Indian Currency Committee of 1898, Commission on International Exchange, 1903, p. 303.

VI

EVOLUTION OF THE GOLD-EXCHANGE STANDARD

A new method of approaching the problem of stable exchange between gold and silver countries—How events forced the limping standard upon France, British India, and the United States—How it was adapted by proper changes to the needs of silver-using countries—The monetary system of the Philippine Islands—Methods of maintaining parity—Adoption of similar systems in Panama and Mexico—The problem of stable exchange with China.

THE extension of the gold-exchange standard in recent years to countries formerly upon a silver basis has been one of the most striking illustrations in monetary history of the adaptation to actual conditions and local needs of constructive legislation. The adoption of this standard in Java and British India was a recognition by law of the evolution of events; but while their experience afforded an illuminating example, the establishment of the gold-exchange standard in the Philippine Islands, Mexico, and Panama was the result of a definite constructive policy based upon the application to existing conditions of sound monetary theory.

It has already been pointed out that the terms "gold exchange standard" and "limping standard" are to some extent interchangeable. If, however, a distinction may be made, it is that the limping standard represents a crystallization by law and custom of accidental conditions, which have not always been favorable to the smooth working of the system, while the gold-exchange standard represents a monetary system consciously constructed

upon a sound basis, adapted to conditions and fully guarded in its actual operation.

The limping standard came into operation in the countries of the Latin Union as a natural result of the wide departure of the relative bullion values of silver and gold from the official ratio fixed by the coinage laws. These causes were considered by the law-making powers of those countries as compelling action to prevent the loss of their gold and their descent to the silver basis. It was recognized that gold was the preferred money of modern commerce by reason of its large value in small bulk, its facility of transportation, and its availability for foreign trade and bank reserves. But it was recognized from the beginning that none of these countries could well afford to part with their entire mass of silver at its bullion price, and that the attempt to dispose of it would so weigh down the market with silver bullion that it could be sold only at a still greater loss, if it could be sold at all. Events, rather than deliberate choice, therefore, forced upon the countries of the Latin Union the continued use of their silver coins.

If the annual gold production of the world had continued nearly stationary in the face of a growing demand, as was the case from 1873 to 1888, and the countries of the Latin Union and the United States had deliberately sought to replace the bulk of their silver coinage with gold, as in the monetary systems of Great Britain and Germany, then indeed, with the expanding demand for gold in the arts, "the scramble for gold," which has been the nightmare of bimetallic dreams, might have become a reality. Such an influence was probably more felt about the time of the international conference of 1881, than even at a later date, although the anxiety then expressed on the subject of the scarcity of gold was as exaggerated as were the fears felt after 1850 over the abnormal increase of gold. It was at the conference of 1881 that the German delegates came forward with the sugges-

tion that Germany would check her sales of old silver bullion, withdraw small gold pieces, and notes of small denominations, and break up her large silver coins into smaller pieces.[1] It was of especial significance that such proposals should come from Germany, because she had refused to send delegates to the international conference of three years before. It was at the conference of 1881 also that Mr. Broch, the delegate of Norway, arguing strongly in favor of the gold standard among the civilized countries of the West, declared that the true field for silver was to be found:[2]

"Not by arbitrarily raising the value of this metal in Europe and America, but by encouraging its use in the countries of the Orient which still have a preference for it; in that vast Chinese Empire, scarcely yet opened to Europe, in that immense African continent, which is to-day invaded from all sides, and where trade is still carried on under the primitive form of barter, but where it would no doubt be easy to introduce the use of silver money."

These expressions of Mr. Broch anticipated to some extent the actual course of events. The influence of the *status quo* always imposes itself with compelling force upon statesmen, however it may be disregarded by theorists. In the case of the countries of the Latin Union and the United States, it was not possible, without great loss to the budget and an economic upheaval, to substitute gold currency for the silver coins in use. It was possible to rescue the monetary system from disaster by taking under government control the output of silver coins, and thereby

[1] International Monetary Conference of 1881, pp. 29, 30.

[2] International Conference of 1881, p. 45. A similar suggestion had been made by Feer-Herzog, of Switzerland, at the Paris conference of 1867: "The world is divided in its monetary relation into two considerable and very distinct groups: on one side the Western States, where gold tends more and more to prevail; on the other, the countries of the extreme East, where silver continues to predominate."—International Monetary Conference of 1878, p. 824.

withholding the premium offered to owners of silver bullion to deluge the country with their product through the mints.

An interesting suggestion for obtaining the benefits of the law of compensation, without the evils of concurrent free coinage for two metals of fluctuating value, was made some years ago by Walras in a little pamphlet entitled *Théorie de la Monnaie*. He frankly rejected the contention of the bimetallic school that it was possible by law to give absolute fixity of relationship to two different commodities. He proposed that whichever happened for the moment to be the cheaper metal should be treated as a token coin—that its free coinage on private account should be suspended and that its output should be regulated by government. Admitting the necessity for the adoption, under present conditions, of a new ratio between gold and silver, he maintained that silver should be coined by the government whenever there developed a scarcity of money as indicated by a low mean of prices, but that such coinage should cease before the security of the standard was threatened by excessive exportation of the standard metal. Carried thus far, his project was not beyond the pale of the world of realities. He proposed, however, in making the project of universal application without regard to time or space, that if gold should again fall below silver at the coinage ratio, then the mints should be closed to the free coinage of gold, and its output should in turn be regulated by the government. An international agreement he conceded to be necessary to carry out this system without inviting the evils which would follow an excessive coinage of the undervalued metal by any one nation. He declared that otherwise, "if the Latin Union alone resumed the coinage of crown pieces, the first effect of this resumption would be to make all its gold drift abroad, and to leave it deprived of its standard money."[1]

[1] *Théorie de la Monnaie*, p. 80.

Walras pointed out that if these evils were restricted by an international agreement, it would be necessary also that the principal monetary powers should regulate their issues of government paper and of legal-tender bank-notes in the same way as their output of token coins or control of the variations of the value of money would prove illusory. In this theory, so thoughtfully worked out by Walras, lies an intelligent diagnosis of the end towards which the leading countries with the limping standard have, under the pressure of events, been blindly groping. Each of these countries has contributed towards diminishing the pressure upon gold, and towards the prevention of undue changes in the relations of the stock of money to commodities, by keeping in circulation token coins of full legal-tender power up to the limit of the amount demanded by the needs of trade.

Under the pressure of events this theory took form in British India, where use is found for nearly $500,000,000 in full legal-tender silver, but where all this silver is maintained at a fixed ratio with gold. The British government by the act of 1899, established a gold fund in India and at London, for the purpose of maintaining the parity of the standard silver coin with gold. This coin, known as the rupee, contained silver worth originally a little less than fifty cents in American money, but it fell gradually to nearly the level of silver bullion until 1893. In that year, as the result of the report of the Indian Currency Commission, the free coinage of rupees was suspended, and the attempt was made to fix their value at sixteen pence, or about thirty-two cents in American money. At first the experiment was difficult. There was a surplus of rupees, and they poured out in great quantities from hoards when it was found that their legal value had been raised above their bullion value. The government, however, persevered in selling exchange on India at London at rates as near the new ratio as could be obtained, and in receiving rupees at that ratio for public dues. Under

ordinary conditions these measures would almost of themselves have maintained a limited silver coinage at par with the standard. While this result was delayed in India, it was so completely achieved by 1899 that in that year the Indian government felt strong enough to establish a gold reserve and offer to deliver silver rupees for gold. The offer was not made at first to pay gold for rupees, but it was soon found that the limitation of the coinage had created a demand for rupees which drew gold into the Treasury instead of drawing it out.

After the failure of the last efforts to secure bimetallism by international agreement in 1897, the course of exchange between the gold countries and the silver countries became still more erratic and disturbing to trade than it had previously been. Maximum and minimum quotations for silver bullion in the London market were as far apart in 1901 as $29\frac{9}{16}$ pence and $24\frac{5}{16}$ pence, or a variation of more than fifteen per cent. In 1902 the maximum quotation fell to $26\frac{1}{16}$ pence per ounce, and the minimum finally dropped in December to $21\frac{1}{16}$ pence per ounce, or about thirty per cent. below the maximum of the year 1900.[1]

It was keenly realized by the financiers and economists of the silver countries that their trade was being greatly hampered by these violent fluctuations. Accordingly, the government of Mexico took the initiative in the autumn of 1902 in seeking the co-operation of the imperial government of China and the government of the United States in a new method of steadying the exchanges. There was a strong movement in Mexico to adopt the gold standard, but it was felt that this could not be done upon the same basis as in the richer gold-standard countries, because of the importance to Mexico of her silver-mining

[1] The London price is for "standard silver," 0.925 fine, while the New York price is for "fine silver," 0.999 fine; so that the equivalents of London prices in American currency require other calculations than the reduction of the currencies.

interests. Mexico and the United States were the largest producers of silver in the world, producing between them two-thirds of the entire product. The problem was more important, however, to Mexico than to the United States, because silver formed nearly forty per cent. of the value of her exports. It was felt, therefore, by Mexican statesmen that it was a condition of vital importance in changing to the gold standard that steps should be taken to prevent another serious fall in the value of silver.

The method decided upon by the Mexican government for remedying the evils of fluctuating exchange was substantially the adoption of the gold-exchange standard. The government of the Philippine Islands had recently requested authority from the Congress of the United States to adopt a definite gold-exchange system in the Philippines, and official commissions were sitting in London and in Paris to consider the adoption of some means of steadying exchanges in the British colonies in the Orient and in French Indo-China. It was, therefore, with a view to harmony among these nations that Mexico asked the cooperation of the United States and China in seeking to bring about greater stability of exchange between the moneys of the gold-standard countries and the silver-using countries. The support of the American government was cordially granted, and a commission was appointed to cooperate with that of Mexico in conferring with the powers having important colonial and commercial interests in the Orient.[1] The objects of the commission in visiting Europe were to explain to the representatives of European powers

[1] The appointment of this commission was preceded by an informal conference in the city of Mexico in March, 1903, between representatives of the Mexican government and three Americans who were invited to Mexico for the purpose—Professor Jeremiah W. Jenks, of Cornell University, Edward Brush, of Greenwich, Connecticut, and the writer of the present work. The members of the American commission appointed by President Roosevelt were Hugh H. Hanna, of Indianapolis; the writer of the present work, and Professor Jenks.

the benefits of putting China upon a gold-exchange standard, and to bring British, French, German, Russian, and American dependencies in the Orient to a similar coinage basis.

The result of the American mission was an agreement between representatives of all the governments visited—those of Great Britain, France, The Netherlands, Germany, and Russia—which was well expressed by the first resolution adopted at London:[1]

"That the adoption in silver-using countries of the gold standard on the basis of a silver coin of unlimited legal tender, but with a fixed gold value, would greatly promote the development of those countries and stimulate the trade between those countries and countries already possessing the gold standard, besides enlarging the investment opportunities of the world."

There was not absolute agreement among the various powers in regard to the best means of reaching this result, but in most cases it was agreed that the ratio of 32 to 1 should be adopted as the relation between the gold standard and the new silver coins. This fundamental resolution was an indorsement of the principle of the gold-exchange standard. It remained to put this resolution in force in as many countries and dependencies as circumstances permitted.

The government of the United States took action before the departure of the American commission for Europe by enactment of a law for the establishment of the gold-exchange standard in the Philippine Islands.[2] Subsequently, in the summer of 1904, by agreement between the governments of the United States and the republic of Panama, a similar system was established for use in Panama and in the Canal Zone, which was leased to the

[1] Report of the Commission on International Exchange, 1903, p. 141.

[2] Act of March 2, 1903, *Vide* Report of the Commission on International Exchange, 1903, p. 403.

United States.[1] Action was not taken by Mexico until near the close of 1904, but the gold-exchange standard was put in full operation from May 1, 1905. The relative stability of silver during the year 1904 tended to promote stability of exchange between Mexico and New York, and made the transition easy from the standard of the Mexican silver peso to the new parity of two to one in American gold. The mere announcement of the adoption of the gold-exchange standard brought exchange down to about 205, and soon after to 202, or, with due allowance for the costs of shipping gold, substantially to the new parity. In the Oriental dependencies of Great Britain and France the movement towards a fixed exchange has been somewhat slower, but free coinage of silver has been suspended, and eventually in both countries the silver unit will be given a fixed parity with gold at a ratio of about 32 to 1.[2]

In two important particulars the plans adopted for a gold-exchange standard in the Philippines, Panama, and Mexico differed from the limping system brought about by circumstances in Java, France, British India, and the United States. These particulars were that the coinage ratio between gold and silver was adjusted to the fall in the gold value of silver which had taken place since 1866, and that definite provision was made for keeping the silver coins at parity with the gold standard by the offer to sell gold bills of exchange at fixed rates for legal-tender silver coins.

The ratio adopted in the Philippines was approximately 32 to 1, a recognition of the fact that silver had fallen in relation to gold by at least fifty per cent. since the adoption

[1] Report of the Commission on International Exchange, 1904, pp. 22–26.

[2] Pierre Leroy-Beaulieu, in an article referring to the Philippine currency system, remarks that "it would be an example easy and extremely useful to follow in our Indo-China, where we are losing precious time in Oriental discussions on this subject, as on many others."—*Économiste Français* (June 10, 1905), p. 830.

of the ratio of 15½ to 1 by France and 15 to 1 by the United States at the close of the eighteenth century. In recognizing this fact and in adopting a coin similar to the Mexican peso, the new system for the Philippines practically consecrated existing conditions of the value of the coin in use and thereby prevented the disturbance of contracts and customary prices which would have occurred if a different system had been adopted. The exchange value of the new unit was fixed at fifty cents in American gold and the coin was made of approximately the same weight and fineness as the Mexican peso—416 grains, nine-tenths fine. The adoption of a coinage "ratio" of about 32 to 1 was not intended to control the value of silver bullion, but simply to conform to its recent price tendencies.[1] It was necessary, however, to allow some margin for changes in the gold price of silver by deliberately fixing the exchange value of the new unit at a price above its bullion value at the moment. The reasons for such an allowance were set forth elsewhere by the present writer as follows:[2]

"It is obvious that if a coin were adopted which represented the gold price of silver at a given moment, and silver should afterwards rise in price, the silver coins would become more valuable as bullion than as coins. They would go to the melting pot, and the country would

[1] The American Commission of 1903 were careful to explain thus their use of the term: "The use of the term 'ratio' in this connection is not intended to imply that the adoption of a given ratio of weight would in itself fix the relation of value between the coins and the gold unit, as is sought by the policy of free coinage of two metals. The term is used here simply to define the relationship between the weight of the silver coins and the gold unit. It is not proposed that the new coins shall depend upon this ratio for their value; that value will depend upon the measures taken to maintain the coins at par with the gold unit."—Report of the Commission on International Exchange, 1903, p. 25.

[2] "Putting China on the Gold Standard," *Wall Street and the Country*, p. 193.

be denuded of its currency. For this reason a margin of about 15 per cent. between the bullion value of the coins and the value given them by law was adopted in the Philippines, and has caused no difficulties in the acceptance of the coins at their full face value."

Government control of the quantity of instruments of exchange goes far to fix their value if it restrains the quantity within the limits of demand; but the effective test of these limits (as we shall see when we come to the discussion of paper currency) is the ability of the holder of the currency to convert it into the standard at will. Whenever an excess appears in the currency of a country, that excess tends to go to other countries where it is likely to earn a higher return. The only money which is thus accepted abroad among commercial nations is gold. A community, therefore, which proposes to maintain its currency at absolute equality with gold must face the necessity of furnishing gold on demand for export. This is, perhaps, the most vital principle in the maintenance of a gold-exchange standard—that while tokens and instruments of credit serve well the purposes of interior circulation, they must, in order to meet obligations abroad, respond to the touchstone of exchangeability with gold.

Inasmuch as the demand for gold is a demand for the use of the metal in other countries rather than at home, such a demand will be effectively met by furnishing the gold at the points where it is intended to be delivered. What was done by the government of the Philippine Islands was to establish a gold fund in New York, against which drafts were delivered entitling the holder to gold at New York. A similar policy was adopted by the government of Mexico. It was a similar policy, also, which was recommended to the government of China as a means of securing the gold standard. If gold funds are kept at the leading financial centres, London, Paris, Berlin, St. Petersburg, and New York, drafts can be sold

upon these funds whenever there is a demand for gold for making payments abroad.

There is one essential condition to the successful operation of this system. This is that whenever drafts are sold for local currency, the local currency paid for them shall be locked up and withdrawn from circulation. This operates to reduce the redundancy of the currency at home, to stiffen rates of interest, and ultimately to influence prices of commodities in a downward direction. Hence the new system will operate under this arrangement with the same automatic precision in regulating the volume of the currency as in a country with a gold currency, like Great Britain, where the exportation of gold reduces the volume of the circulation, and by making money scarce reacts upon rates of interest. When these operations have produced their effect and there comes later a renewed demand for currency at home, that demand can be met by the deposit of gold in the reserves at leading foreign centres, thus replenishing the stocks reduced by previous drafts and releasing local currency to meet demands for increased circulation. This is substantially the plan which has been in successful operation in British India, where rupees are paid out at a fixed rate for the gold coin of Great Britain.

Thus far the experience of the Philippines, Panama, and British India has attested the soundness of these principles by their successful operation. In the Philippines laws of a somewhat vigorous character were required to overcome the tendency of "Gresham's law," to keep in use the currency issued on a silver basis;[1] but as soon as the new currency had obtained a firm footing its advantages over the previous fluctuating standard were generally recognized. Any holder of the new currency was authorized to exchange it for drafts on the gold funds of the Philippine government in New York at a charge of three-quarters of one per cent. for demand drafts and one and

[1] *Vide* Act No. 1045 of the Philippine Commission, Report of the Commission on International Exchange, 1904, p. 308.

one-eighth per cent. for telegraphic transfers.[1] Parity was thus fully maintained and the Philippine government was able to report to Washington that the gold standard met the approval of the entire public and that business conditions were much improved.[2]

In British India, where the experiment of maintaining parity seemed most doubtful, because of the necessity of maintaining the value of $500,000,000 in silver at the artificial ratio of about 24 to 1, the embarrassments the government has suffered in recent years have come from the growing demand for silver coins rather than from pressure on the gold reserve. The sum specially set aside as a gold reserve fund increased from £3,810,730 on March 31, 1903, to £6,382,200 in 1904, and to £10,984,000 in 1905. So remote is the probability of demands upon it that it has been invested in consols and other government loans; for, in addition to this distinctive fund, there is a further accumulation of gold in the "currency reserve" amounting to £10,494,556 ($51,160,000), available for the purchase of silver for further coinage.[3] So heavy have been the demands for silver rupees, under the stimulus of large crops, railway extension, and the inflow of foreign capital, that measures were taken in 1904 to anticipate the demand by accumulating silver bullion at the mints in advance of the tender of gold.[4]

To confer upon China the benefits of a similar system was one of the chief objects of the American and Mexican commissions in their conferences with European powers in 1903. In dealing with the subject they acted at the invitation of the Chinese imperial government and without seeking to derogate in any degree from the political

[1] Act No. 938 of the Philippine Commission, Report of the Commission on International Exchange, 1903, p. 409.

[2] Despatch of civil governor, October 30, 1904, Report of the Commission on International Exchange, 1904, p. 297.

[3] Report of the Commission on International Exchange, 1904, p. 497. [4] London *Economist* (June 3, 1905), LXIII., p. 909.

independence of China—any more than Belgium reflected upon the independence of France in proposing the conferences which brought about the Latin Union in 1865.[1] The difficulties in China were great, growing out of the absence of any uniform monetary system (or even the use of coined money in certain parts of China), the lack of power of the imperial government over the viceroys, and at first the opposition of powerful banking interests. Much was done to overcome these obstacles by Professor Jeremiah W. Jenks, who was in China during most of the year 1904 as representative of the American Commission on International Exchange. High officials, including the most progressive of the viceroys, were convinced of the wisdom of the proposed plan. Foreign business and banking interests, at one time sceptical, were won over, and there appears to be no doubt that China will eventually abandon her isolation as the only important country which is not upon a gold basis, and will follow her Oriental neighbors into the ranks of gold-exchange countries.[2]

[1] *Ante*, Bk. iii., chap. ii. There were at first some misapprehensions on this point in China, but they were largely dissipated by the American commissioner. *Vide* also the memorial of the Chinese minister to Russia.—Report of the Commission on International Exchange, 1904, p. 190.

[2] The United States consul at Amoy, George E. Anderson, after a careful review of the difficulties of establishing a gold-exchange standard in China and providing for a gold reserve fund, concludes his report with the declaration, "that the business interests of China can find the means to properly establish it when once they go at the problem in earnest, I have not the least doubt."—U. S. Consular Reports (June, 1905), LXXVIII., p. 267.

VII

OPERATION OF THE EXCHANGE STANDARD

A result of economic conditions—Difficulties in practical operation under the old coinage ratios—Relative adaptability of silver money in the Orient and Occident—Danger of excessive issues of silver—Advantages of the exchange standard in diminishing pressure for gold—In restoring stability of exchange—Effect upon the market for silver bullion—Analogy of the exchange standard to bimetallism—Its greater practicability.

EVENTS are stronger than theories in shaping economic tendencies. The limping standard, forced by the logic of events upon the countries of the Latin Union and upon the United States, while deplored by many in those countries as an evil, has contributed to diminish the pressure for gold, and has permitted several important states to obtain, without too much difficulty, the supply of the yellow metal necessary to the inauguration of the gold standard. There are difficulties about the operation of the limping standard in the countries where it is now in force, growing out of circumstances which will be hereafter discussed; but these difficulties can be avoided where the creation of a coinage system is undertaken in the light of present facts, and the limping standard may be made the effective means of restoring par of exchange between the countries of the East and West, so long broken by the fall in the gold price of silver, and thereby of forging anew the link of commercial relationship which is so vital to the prosperity of both hemispheres.

The limping standard as evolved by events in France and the United States was for many years a source of

anxiety and a cause of difficulty to financiers. Primarily the difficulties arose chiefly from the fact that the monetary organism was not based upon any well-reasoned and coherent plan, but was the result of a sudden halt upon the brink of the precipice of a depreciated standard. The difficulties which thus developed may be grouped thus:

1. The great difference between the bullion value and the face value of the token coins.

2. The lack of adaptability of the token coins to trade requirements in the advanced countries.

3. The excess in supply of the token coins, or at least the lack of automatic responsiveness in their amount to the needs of trade.

I. The difference between the bullion value and the face value of the coins of the Latin Union and the United States is an almost insuperable obstacle to the substitution of a pure gold currency for these coins, and exposes them to great danger of counterfeiting. The coins are worth only about forty-five per cent. of the value for which they pass in retail trade, and may be legally tendered in payment of contracts expressed in money. No direct loss to creditors accompanies these conditions, but a heavy burden is imposed upon the credit of the state in keeping the coins at their face value. It was estimated in 1898 that France, if she had attempted to convert her silver coins into pieces corresponding to the market-price of silver bullion, at the ratio of 35 to 1, would be subjected to an expense of about $235,000,000.[1] Such an expense has inevitably deterred her from withdrawing her old five-franc pieces and selling them for gold. The profit in counterfeiting such pieces is more than one hundred per cent., even when the counterfeits contain the full amount of fine silver contained in the official coins. Many such counterfeits have been found in the United States, some of them containing a fraction more of fine silver than the amount

[1] Darwin, p. 51.

required by law, and their wide distribution has been prevented chiefly by the fact that the official coins do not circulate widely, and that any suspicious appearance of new pieces in circulation in a given neighborhood would quickly attract the attention of the agents of the Secret Service.

In a country inaugurating a limping-standard system under present conditions, no such wide departure of the bullion value of the silver coins from their face value need be permitted as has come about in France and the United States. When Japan adopted the gold standard in 1897, the ratio between gold and silver was fixed near the market ratio of the two metals.[1] This took away any unusual temptation for counterfeiting, and permitted the resumption of gold payments without disturbing the relation of prices and contracts existing at the time.

It is unquestionable that if the gold-exchange standard is to be made applicable to the conditions encountered in the Orient, it must be by the recognition of a new ratio between gold and silver corresponding in some degree to the recent market ratio. The countries of the Latin Union and the United States, burdened with many millions of silver coined at the old ratio of $15\frac{1}{2}$ to 1 and 16 to 1, have to deal with a condition whose difficulties they must meet in the best practicable manner; but the gold-exchange standard, in its theoretical application, must take some account of the market value of silver, although it furnishes means of guarding against the fluctuations of this value.

II. The lack of adaptability of large silver coins to the requirements of trade in the advanced countries has be-

[1] The report on the bill declared that "it would be well to raise the rate for our purpose a little, and fix it at one of gold to thirty-two and a fraction of silver"; but the actual silver coins were made only eight-tenths fine, in order to prevent their exportation in case of a rise in silver.—*The Adoption of the Gold Standard in Japan*, p. 189.

come clear as wages have risen and wealth has increased. Such a progressive development causes a natural evolution from a cheaper to a dearer money metal. The situation differs, however, in the undeveloped countries of the Orient. A currency which contains a large proportion of gold coins is better adapted than a currency of silver to the needs of a wealthy country; but a currency which contains a large proportion of silver coins is best adapted to the needs of a poor country. This is because the standard of wages and prices is higher in the rich country than in the poorer. In British India, China, and the Philippines, where the wages of skilled labor are forty cents a day in silver, or twenty cents in gold, a currency of gold coin would leave the average laborer in about as convenient a position in making his retail purchases as Mark Twain found himself in with his million-pound note.

The smallest practical gold coin represents in the Orient the value of one dollar, or the pay of five days' labor. It is obvious that convenience as well as necessity would lead countries under such conditions to a large use of silver currency in preference to the attempt to retain and use a pure gold currency. To neglect of this element in the monetary problem are probably due some of the embarrassments which were felt in Japan after the introduction of the gold standard; and it may be questioned whether Russia has not vaulted too far, in view of her present standard of wages and national wealth, in adopting the gold currency of her richer rivals, Great Britain and Germany.[1]

III. That France and the United States have suffered

[1] The Russian delegate at the International Conference of 1881, fifteen years before the adoption of the gold standard in Russia, called attention to the fact that half of what Russia, Austria-Hungary, and Italy would require for the resumption of specie payments would be found if the gold pieces equivalent to ten francs ($2.00) and below were transformed into silver pieces. —Russell, p. 287.

materially from their excessive stock of overvalued silver coins hardly admits of serious dispute. In the United States a serious panic was invoked in 1893 by the large infusion of silver into the currency beyond the natural demand. The excess of silver tended to expel gold and to destroy the gold basis of the currency system. The difficulty was due, however, to the fact that the Secretary of the Treasury was required by law to purchase silver bullion to the amount of 4,500,000 ounces per month, and issue circulating notes for this silver without regard to the need for currency in the markets. The moment that the supply of silver or silver notes passed the limits of the normal demand, a progressive deterioration of the currency set in. Assuming that the requirement for currency was a constant quantity, every dollar of new silver added to the circulation tended to expel a dollar of gold. This obviously need not occur under proper regulation of the output of token coins by the government.

The essential evil of the token coinages of France and the United States, which has naturally cast discredit upon their monetary systems, is that their token coins have been issued far beyond the demand for them in the channels of trade, and, therefore, far beyond the limit of safety. A government inaugurating a token coinage unhampered by previous conditions would be able to take measures to check the output of token coins whenever the quantity threatened to flood the channels of the Treasury receipts or to impair their fixed relation to the standard.

The advantages of the gold-exchange standard, under intelligent direction, may be thus summed up:

1. Diminution of the pressure upon the world's supply of gold.

2. The maintenance of par of exchange between Oriental and Western countries.

3. Adaptability to poor or undeveloped countries.

4. The opening of markets for silver, with the result of steadying its value.

I. The limping standard has become since 1873 the standard of several of the leading commercial nations of the world. These nations are France, Belgium, Switzerland, and the United States. The principal countries which adhere positively to the gold standard, with the use of silver only as a limited legal tender, are Great Britain, Germany, and Russia. These seven nations represent a very large proportion of the wealth and commerce of the civilized world, and the influence of their policies upon the stock of money metals is necessarily great. Of the total gold money of the world, they hold almost precisely four-fifths, and even of the silver money they hold nearly sixty per cent., outside the great stocks of China and India. The part which is played by gold and silver in the monetary systems of these seven leading nations may be inferred from the following estimate from official sources of their stock of metallic currency on January 1, 1901:[1]

	Gold coin	*Silver coin*
LIMPING STANDARD		
France	$810,600,000	$421,200,000
Belgium	17,800,000	35,000,000
Switzerland	24,000,000	10,700,000
United States	1,110 800,000	655,800,000
	$1,963,200,000	$1,122,700,000
GOLD STANDARD		
Great Britain	$511,000,000	$116,800,000
Germany	721,100,000	208,400,000
Russia	724,300,000	102,500,000
	$1,956,400,000	$427,700,000

These figures show that while the countries with a pure gold standard are compelled to make considerable use of silver, their silver stock is equal to less than twenty-two

[1] These figures are used rather than those of later dates, because they bring out more distinctly the different status of the strictly gold-standard countries and those under the limping standard. Growth in wealth and resources has increased the ratio of gold to silver in both France and the United States, and the latter, since the passage of the Gold Standard Law of 1900, may fairly claim to be under the régime of the gold standard.

per cent. of their gold stock, while in countries where the limping standard prevails the silver coinage is equal to more than fifty-seven per cent. of the standard coins of gold. If the continued use of both metals, therefore, has contributed to steadying prices by maintaining that law of compensation in the relative supply of the two metals, upon which bimetallists so much rely, it may be fairly contended that the maintenance of the limping standard in these four representative countries has obviated the need for nearly $700,000,000 in gold coin, and thereby diminished by that amount "the scramble for gold" which bimetallists consider to be so serious a result of the general adoption of the single gold standard.

II. The rupture of the old par of exchange between the gold-standard countries of the West and the silver-using countries of the Orient has been one of the most disturbing features of the fall in the value of silver. It is correctly declared by Darwin that "though it is possible to insure against many of the risks which are thus experienced, the price paid for the insurance constitutes a true burden on trade."[1] The insurance proposed by the bimetallists against these fluctuations has been that all nations—whether rich or poor, whether their unit of pay for a day's labor was two dollars or twenty cents—should be chained upon the Procrustean bed of free coinage for both metals. A better insurance is offered by the system of the gold-exchange standard. The logic which makes silver the most useful form of currency in undeveloped countries points out the natural course to be pursued by those countries in adapting their monetary systems to modern conditions. It is possible for all these countries to adopt the gold standard, while retaining silver in daily use. They thus obtain one of the essential advantages claimed for bimetallism by abolishing the fluctuations of exchange between gold and silver countries caused by the depression

[1] *Bimetallism*, p. 132.

of silver, without drawing heavily upon the world's stock of gold.

III. For undeveloped countries the use of silver in large amounts is a vital necessity, and it usually comes into use, even in the face of hostile laws. Silver is the usual medium of exchange in Java, where a gold standard exists with hardly any gold in use, and it is the medium for large transactions in China and other parts of the Orient, even though the coins have to be sought in a foreign and distant land.

The advantage of a token coinage for comparatively poor or undeveloped countries is the same as the advantage of paper credit—it permits economy of capital. The token coins are less expensive than coins of the standard metal, both by the margin between their face value and their bullion value, and by the fact that they are made from the metal for which competition is less severe. A country employing a large volume of token currency is not in danger of losing such a currency by exportation. The coins cannot be melted up for their face value. While they may have the character of gold exchange on the country where they are issued, they can only be converted into gold by sending them back to that country when they drift abroad.

The maintenance of a token currency, instead of one entirely coined from the standard metal, is an interference to a limited extent with the automatic play of the self-interest of individuals which prevails under free coinage, but all coinage systems are the result of official action taken to promote the convenience of the community. Constant intervention by the government is a part of the existence of any system, even where free and gratuitous coinage on private account is authorized by law. The advantage of a token currency maintained constantly at par with the standard metal is that the government takes upon itself the responsibility for maintaining the par value of the token coins by means of a gold reserve,

and takes the necessary steps by the issue of a loan or by taxation to maintain this reserve. The government interferes with the law of natural selection which would lead the individual to dispense with currency in order to obtain some more necessary form of capital, but in doing so brings a real advantage to the community by maintaining an adequate medium of exchange where it would not be obtained under a system of free coinage of the standard metal without token coins. In this, as in many other matters, the government may properly intervene to obtain a benefit of great importance to the community as a whole, but of a character which would not result from the free play of self-interest among individuals, and could not result from it except by concerted action.

It is a principle now generally admitted, that in order to prevent exportation the subsidiary coins of any country should not be of their full face value. The extension of this rule to token coins of full legal-tender power is preferable to going without an adequate currency, if the parity of such coins with the standard can be made unquestionable. In spite of the somewhat artificial nature of such a project, a proper system of token coinage, with adequate provision for supplying gold for export, would operate in substantially the same manner as a coinage consisting entirely of the standard metal.

It cannot be properly said that such a well-organized system of token coinage involves any other departure from security or sound monetary principles than is involved in other extensions of credit designed to economize the use of the standard metal. The principle is the same as with the issue of bank-notes upon a coin reserve, and involves the application of the same banking principles in the regulation of the quantity of the currency and in keeping intact the reserve necessary to maintain credit issues at an equality with the standard. Undoubtedly, from a theoretical point of view, a token issue of credit paper secured by a proper gold reserve has most of the advantages

of a token coinage of silver, and has also a much greater economy. So far as paper is adapted to economic conditions and popular prejudices, it should be introduced in preference to token coins, especially for currency of the larger denominations.

The practical problem, however, with which statesmen have to deal, is the prejudice of the peoples of the East, and many of those of the West, for a currency of ringing metal rather than one of paper. The recognition of money as a commodity is instinctive among primitive peoples, and leads them to prefer a form of money which possesses tangible value in itself, and permits a more satisfying form of ostentation than the display of a roll of bank bills. The adoption of a token coinage, possessing an exchange value approximating its bullion value, promises to be the most important step which can be taken in our time in educating the undeveloped peoples to the true function of money and credit, and the final evolution of a bank-note currency resting upon an adequate gold reserve. Metallic tokens cannot be entirely dispensed with, even among advanced nations. There are reasons connected with the standard of wages and living, and the risks of destruction by weather and insects, which make them naturally preferable to paper in certain tropical and undeveloped countries. Where the bullion value of the coins, moreover, is only slightly below their face value, a token coinage gives more solidity to the currency system, and is less likely to result in demands for the standard metal, than the premature adoption of the highly organized gold-credit currency systems of the nations of the West.

IV. Injurious as the limping standard has proved in some respects to the monetary interests of the countries of the Latin Union and the United States, the logic of events has, perhaps, as already suggested, been wiser than abstract theory. If the single gold standard had been adopted in all countries in the form in which it prevails in Great Britain, without regard to their scale of wages and

prices or their surplus capital available for investment in the tool of exchange, there would undoubtedly have been a much more severe pressure upon the world's supply of gold than has actually been felt. This pressure would probably have drawn the metallic medium of exchange to the richer countries from the poorer, and left the latter impoverished in their means of carrying on transactions.

It would have caused a still further fall in the value of silver by diminishing the demand for it. But a large market would be opened for the white metal if the gold-exchange standard should be adopted upon a scientific basis in the countries which are now without a currency, or are laboring in their relations with gold countries under the difficulties caused by the single silver standard. Such a system would be an almost unlimited blessing to these less advanced countries for many years to come, and would make their transition to a gold currency almost absolutely automatic if the scale of wages and living increased the demand for gold and checked the demand for silver. If silver gradually fell into disuse by a rise in the scale of wages and national wealth, the suspension of coinage could be continued indefinitely, as at present in the countries of the Latin Union, and all increments to the metallic circulation would be made thereafter in gold. If, on the other hand, silver should be in such demand that its price should approach the legal parity, and threaten to rise above it, a perfect remedy is afforded by the gold-exchange standard. This remedy lies in the option of the debtor to turn to gold by presenting that metal for coinage at the mints and thereby relaxing the pressure upon the stock of silver.

The necessary condition of such a system is government control of the coinage. It is this which differentiates the gold-exchange standard from free coinage, and permits a value to be given to coined money which is different from its value as bullion, because of the specific demand for coined money as a medium of exchange and in

the execution of legal-tender contracts. The importance of this principle, that limitation of the quantity of a commodity in the face of a given demand will raise the value of the commodity, has too often escaped the attention of the advocates of unlimited issues of silver and of government paper. Just so much currency as is needed for use at its current value will be absorbed by the community without depreciation in its value. In the case of money, when the quantity exceeds this complex demand, depreciation in value sets in—first, in the rate paid for the rental of money, which draws the surplus abroad to earn higher returns if the money is of a sort accepted everywhere; and second, in the depreciation of its exchange value if the excessive quantity continues to confront only a limited demand. Government control of the tools of exchange involves dangers which are not to be lightly put aside; but under such a system as is here proposed, there would be little temptation to issue token coins in excess of the demand, because the profit would not be large, and the penalty would be swift in coming, and glaringly plain to the public, in the flight of gold and the imminent risk that the par of exchange would be broken with other commercial nations.

In some such system as this, which links silver to gold by measuring the value of the cheaper metal in the dearer, is to be found the most scientific and the most practicable solution of the monetary problems of the future in the countries which are being opened to the influences of Western civilization. The difficulties of wide fluctuations in exchange are swept away, or at least greatly minimized, without imposing upon either the gold or silver countries of to-day a system ill-adapted to their domestic needs. It was declared by the British Gold and Silver Commission of 1888:[1]

"Everything which hampers complete freedom of inter-

[1] United States Sen. Misc. Doc. No. 34, 50th Congress, 2d Session, p. 84.

course between two countries, or which imposes on it any additional burden, is undoubtedly an evil to be avoided or removed, if possible. If, therefore, a remedy could be devised to accomplish this end, without involving the risk of other disadvantages, there cannot be two opinions that it would be worth while to apply such a remedy."

To this declaration Darwin makes the addendum that "Either bimetallism or universal monometallism would, without doubt, effect a complete or almost complete cure, and the question in each case is whether the remedy is practicable, and whether its accompanying disadvantages do not outweigh its undoubted merits."[1] The "accompanying disadvantages" have thus far proved too serious to permit the extension of a pure gold currency or of bimetallism throughout the world. The experience of British India, and the plan adopted by the United States for the Philippine Islands, point the way for another solution of the problem more in harmony with local conditions in all countries and with the historical evolution of money. This system not only affords a uniform monetary standard for foreign trade among all nations, but has many of the advantages attributed by its advocates to bimetallism in compensating the scarcity of gold by opening the reservoir of the world's supply of metallic money to the steadying current of silver, with the limitation, however, that the sluice-gates may be closed if the new current threatens to raise the common stock above the level of safety, and to spread ruin over the fertile fields of commerce by driving the standard metal from the reservoir and supplanting it with the more volatile.

The project of international bimetallism approached the subject of regulating the value of silver from the side of demand. It did not undertake to deal with the matter on the side of supply. By creating an unlimited demand for silver at a fixed ratio to gold, through opening the

[1] *Bimetallism*, p. 133.

mints to free coinage on private account, it was sought to maintain a fixity of value between gold and silver bullion. The experiment failed, so far as it was tested in the countries of the Latin Union and in the United States, because the supply of silver was in excess of the demand at the legal ratio. The demand which was created, while it undoubtedly enhanced in some degree the value of silver, by widening the market for it, was too artificial to absorb the product at its old gold value in the face of a growing preference for gold. This was plainly indicated by the accumulation of silver five-franc pieces in the Bank of France, when the option was open to any Frenchman to obtain them in exchange for gold, if he preferred them.

The problem was approached from another side—the side of regulating the supply—when the proposals of the Mexican government were made to the United States, in 1903, for securing fixity of exchange between the moneys of the gold-standard and the silver-standard countries. It was no longer a proposition to secure fixity of value between gold and silver bullion, but between gold and silver coins. Therein lay a marked distinction. It is easily within the scope of government authority to regulate the quantity of silver coin by providing a supply barely up to the limit of demand. This regulation of supply was the one factor lacking to success under the project of bimetallism. If the governments of the world which desired to use silver should keep the amount of silver money in use just equal to the need for it, and should take steps to keep such money at par with gold, either by direct redemption or by sale of foreign bills of exchange, the problem would be solved of keeping at par coins of both metals. The gold price of silver bullion would then be subject to the play of supply and demand in the market, but the fluctuations in bullion would not affect the value of the coins.

This policy of giving a fixed exchange value to silver coins by government control of the output would not be

without influence, moreover, upon the market value of silver bullion. It would permit countries whose scale of transactions was adapted to silver money to employ such money in large amounts without being subject to the inconvenience of fluctuations in its gold value, just as in the advanced commercial countries the subsidiary coins were easily maintained at gold par, and the public were thus guarded against the inconvenience of having them fluctuate in relation to the standard coin.[1] An extension of the same principle to the currency most used would permit a larger employment of silver than would otherwise be possible with equal convenience, and would thereby contribute to widen its market and maintain its price.[2]

The adoption of a gold-exchange system of this character escapes another fundamental difficulty of the proposed bimetallic arrangement. This difficulty is to secure a general agreement among commercial nations. No such agreement is necessary to permit any nation to issue a limited amount of silver coins and to keep them at par with its gold standard. There are advantages in co-operation, especially in regard to the ratio of weight to be adopted between the gold and silver coins, but the difficulties are not insurmountable in the way of independent action by each government.

The system of a fixed exchange between gold and silver coins avoids, therefore, two of the cardinal difficulties in

[1] As Laughlin says: "The circulating medium of India will and must remain silver, and the demands of the people for silver will remain unchanged."—*Bimetallism in the United States*, p. 203.

[2] The instructions given by the government of Mexico in 1903 to its Commission on International Exchange declared: "The fundamental object of the Commission must be to secure the stability of the rate of exchange between silver-standard countries and gold-standard countries, without preventing thereby the nations which now use silver coin from continuing to coin it or from consuming it in the same or larger quantities, provided that its value with relation to gold becomes fixed."—Commission on International Exchange, 1903, p. 165.

the project of international bimetallism. The system of a fixed exchange attacks the problem of the value of silver by adjusting the quantity of coins to the demand for them, instead of endeavoring to create an artificial demand for an indefinite supply, and it permits each nation to act for itself without the co-operation which has been found in practice, after repeated efforts, impossible in the project of international bimetallism. This freedom on the part of each nation to follow its own policy permits a more prompt adaptation of the monetary system of each to the historical evolution of its monetary needs. As set forth by the writer elsewhere:[1]

"This project, granting to each government the right to regulate its own monetary system without concerning itself with the systems of other nations, has this important corollary—that it leaves each state free to choose the means of exchange which conform best to its local conditions. Rich nations are free to choose gold, nations less rich silver, and those whose financial methods are most advanced are free to choose paper. Each is able to plant itself on the gold standard and to maintain the parity of foreign exchange by the methods which to it seem the most efficient."

[1] "Le Change entre les Pays a Étalon d'Or et a l'Étalon d'Argent," *Revue Économique Internationale* (January, 1905), p. 85.

VIII

THE THEORY OF GOVERNMENT PAPER MONEY

Such money usually inconvertible and made a forced legal tender —From what sources it derives its value—Government cannot create value, but can create a limited demand for paper money by making it legal means of payment—Limited influence of accepting paper for public dues—Why needy governments are tempted to issue paper—Unfortunate experience of the United States with the greenbacks—Many evils which flow from paper issues.

GOVERNMENT paper money consists of notes issued by a government to circulate as currency. In order to circulate readily such notes are printed in uniform style for even sums. They do not usually bear interest, although there have been cases where an effort had been made to give to interest-bearing obligations for small denominations the money function. Two important attributes have usually distinguished issues of government paper money—that they have been inconvertible and have been made legal tender for debts.

Inconvertibility means that the government has made no arrangements, or inadequate ones, for converting such notes at the will of the holder into standard money. The fact that they are not redeemed in such money on presentation has given such notes also the designation of *irredeemable government paper*. While we shall have occasion to speak of some cases in which government notes have been made redeemable, the temptation to issue them has usually derived its force from the fact that they could be issued without providing for redemption. Dis-

cussion of both the history and theory of government notes has, therefore, been based upon their lack of convertibility into coin at par at the will of the holder.

The "legal-tender quality" is conferred on different forms of money in the United States only by specific provisions of law. In Great Britain, however, the obligation to receive money at its face value seems to have been assumed for all the current moneys of the kingdom as a part of the common law. When Henry III., in 1257, tried to introduce gold into the currency, a writ issued "commanding the Mayor of London to proclaim in that city that the gold money which the King had caused to be made should be immediately current there and elsewhere within the realm of England in all transactions of buying and selling, at the rate of 20 pennies of sterlings for every gold penny."[1] In most modern states the limits are defined to which the subsidiary coins may be employed in making payments, and few such states have hesitated to give the quality of legal tender to their own paper issues and to those of the banks when war or economic difficulties have led to the suspension of specie payments.[2] The need for any legal-tender laws is disputed by some economists. Bank-notes which are redeemable in standard money are often not a compulsory tender, but are accepted in current transactions, because they are as good as legal money.

The fact that governments have been able from time to time to issue paper which had value in exchange, even when not redeemed in coin on demand, has led to much confusion of thought regarding the causes which give value to money. The essential question, can government

[1] For this and other instances, *vide* S. P. Breckinridge, *Legal Tender*, p. 18, *et seq.* By a statute of 27 Edward III., persons desiring to accept foreign moneys were permitted to do so, but were not compelled to against their will.

[2] The French employ two terms for legal tender, *cours légal* and *cours force*—the former corresponding to the legal recognition of current metallic money, the latter plainly recognizing the forced character of irredeemable paper.

create value? has been answered in too broad a way, both by those who have opposed such issues on the one hand and by those who have looked upon them as a magic means of creating wealth on the other hand.

The value of money is derived in part from its use as a medium of exchange. It is in the power of a government, as it is in the power of an individual, to give value to a certain extent to any article by creating demand for it. A government is able to create demand for articles through its position as consumer. The value of battle-ships and cannon would fall materially if governments should suddenly diminish the demand for them by a universal convention to give up their use. It cannot correctly be said, therefore, that government has no power to confer exchange value. Even an individual has power, within the limit of his means, to create demand for articles having no tangible use, as diamonds, autographs, or rare manuscripts. Such articles derive exchange value from the relation of demand to supply. The same principle applies to paper money. Government can create a demand for such money by special measures; it can by other measures monopolize the supply and so concentrate the demand for a medium of exchange upon this supply as to compel private individuals to employ it as the only alternative to going without a medium of exchange. It is well said by Fetter that "a sound theory of paper money makes it a special case of monopoly value." How this comes about he thus sets forth:[1]

"Business conditions remaining unchanged, the limit of possible issue without depreciation is the number of units in circulation before the paper money was issued, the saturation point of full-weight and full-value coins. Because governments generally have not stopped at that point, paper money has depreciated."

There is in every community a demand for a medium

[1] *The Principles of Economics*, p. 451.

of exchange. This demand is met in communities where a metallic currency is used by gold and silver coins and promises by responsible institutions to pay such coins. When a government determines to issue paper money and to make it legal tender, it is aided by the operation of Gresham's law, that an inferior money will drive out a better. Where the option of receiving one or the other of two articles lies with the person who is to receive them, the option will be exercised in favor of the better article. Competition to obtain the favor of the consumer thus tends to keep up the quality of the articles offered by shopkeepers. In the case of money, if the option lay with the creditor which money he should receive, he would insist upon the best. This condition, however, is reversed by a legal-tender law which gives the option to a debtor. Such a law confers upon the debtor the privilege of paying in paper money where the creditor would prefer gold. Inevitably under the operation of the principle of self-interest, every debtor accepts the option of paying in the cheaper money.

Even if gold, therefore, remains a legal tender in countries where government paper has been issued, the gold will soon disappear because it has a higher value than the paper. Even if the paper is, by careful regulation, maintained substantially at par with gold within the country, it will be found that it is not accepted readily abroad. Gold is accepted abroad, and is, therefore, used to pay for imports and other obligations where the new paper cannot be so used. Hence the gold will be withdrawn from circulation for use abroad and the vacuum will be filled by the new paper. As every man has debts to pay, which he has either formally contracted for deferred payment or by the cash transactions of daily life, he will require legal-tender currency to pay them. Even aside from the payment of debts, there will be a demand for the legal-tender currency for till-money for merchants and for meeting demands upon banks for loans.

In short, the fundamental need of the community which has given rise to the use of money can be satisfied only by the continued use of some substitute for money, even where economic tendencies drive away the true money of standard metal. This entire demand for money, therefore, including the customary demand as well as the demand arising to fulfil contract obligations previously entered into, will absorb government paper up to the amount where it replaces the coined money which has been previously in use. Thus a government which issues such paper and declares by law that it shall be received for debts will have little difficulty in putting it in circulation through the medium of its usual disbursements. As the process is explained by Beaure:[1]

"Fictitious and managed money is sought because it is useful in exchanges and it is difficult of acquisition because it is limited in quantity. Then also it is representative of real money, being exchangeable for it. It enters the category of articles which, being no longer capable of reproduction, have by hypothesis a value which depends not upon their cost of production (which relates only to the past), but solely upon demand and supply."

The acceptance of government currency at par for public dues is an element in giving it value. The holder of government notes knows that if the private individual will not take them as the equivalent of the coined money which they have displaced, the government will do so. He can pay fees for passports and invoices, he can purchase postage-stamps, he can pay customs duties and direct taxes with the paper currency. If he has not such payments to make himself in large amounts, he knows that importers and others have them to make and that he can dispose of the money at a trifling discount to them. Thus, within certain limits, the fact that government currency is a legal tender to the government, as

[1] *Théorie et Pratique de la Monnaie*, p. 32.

well as between individuals, aids in maintaining its value.

It should be obvious, however, that the acceptance of government paper for public dues cannot maintain the value of an amount of such paper in excess of the demand thus created. There are several historical instances where its value has been maintained because the quantity was limited, and these instances have been misinterpreted by some as affording evidence that acceptance for public dues will maintain at par any quantity of such paper issued. Thus, when the General Court of Massachusetts enacted in 1692 that the notes of the province should pass in public payments at an advance of five per cent. over their face value, the notes were successfully maintained at par for twenty years. But the amount was only £7000, and when further issues were made, even with careful provision for redemption, depreciation of the paper set in.[1]

Another instance, much quoted by the advocates of government paper money, was the issue of demand treasury notes made by the United States early in the Civil War. These issues fell at first below par, and were discriminated against at the banks; but when they were made receivable for customs dues on the same basis as coin, they rose to a premium over later issues, to which no such privilege was attached. As they were cancelled when thus received, and greenbacks issued in their place, Secretary Chase was able to report that the amount out-standing had been reduced on June 30, 1863, to $3,300,000.[2] As gold was otherwise required for the payment of customs duties and these notes were accepted for the same purpose, they acquired the character of gold for these payments. The government having thus cre-

[1] S. P. Breckinridge, *Legal Tender*, p. 57.

[2] Finance Report, 1863, p. 45. The popular impression that these notes were always at par or a premium is shown to be unfounded by Mitchell, *History of the Greenbacks*, pp. 149–155.

ated a demand for the notes and having provided a supply which was not in excess of the demand, they retained a value which they could not have retained if the supply had exceeded the demand.

It is not an easy task, however, to hold up the value of irredeemable paper in coin. It is an axiom of mathematics that "things which are equal to the same thing are equal to each other." Paper which can be exchanged at par for coin is, therefore, equal to coin; but the corollary of this axiom is that paper which cannot be exchanged at par for coin is not equal to coin.

Why, then, it may be asked, have issues of irredeemable paper ever been resorted to? The most obvious answer is, that such issues enable the government making them to obtain capital without paying for it. When the government of the United States in 1861 began the issue of treasury notes, it incurred no immediate cost but that of printing the notes. It was able to exchange them for guns, ammunition, uniforms, and stores. From a superficial point of view it might appear that a very clever stroke of finance had been achieved in acquiring all these things for the state, themselves the product of the labor of many thousands of men for many weeks, without any other cost to the government or the country than an act of legislation and the revolutions of the printing-press.[1]

In most cases of government issues, however, it has not been altogether out of pure wantonness—the desire to get something for nothing — that the printing-presses have been set in operation producing paper money. It has been because of inability, or supposed inability, to obtain resources by other means or disinclination to resort to

[1] This principle seems to have been recognized in ancient times. It is related of the Klazomenians that, having troops to pay, they took for this purpose the gold of individuals, replacing it by pieces of iron to which they gave a value equivalent to that of the confiscated gold. *Vide* other instances gathered by Souchon, *Théories Économiques dans la Grèce Antique*, p. 142.

such means. This was the case with the early issues of the American colonies, who were ill-equipped to invest a large capital in a metallic currency; it was the case with the *assignats* issued in France in the hope of averting the bankruptcy invoked by many years of royal extravagance, and it was the case also with the first issues of "greenbacks" in the American Civil War. In the latter case, it was possible to have averted the issue of government paper by prompt resort to the powers of taxation; but such steps were so long delayed as to justify in a measure Charles Sumner's declaration:

"Whatever may be the national resources, they are not now within reach, except by summary process. Reluctantly, painfully, I consent that the process should issue."

This passage rightly defines the manner in which the government took capital from its citizens by the legal-tender acts. It hints, however, at a deeper economic motive for such action—a motive which has been generally overlooked in the discussion of the subject, but which serves as a partial set-off (though a very incomplete one) for the evils which government paper has caused. This was the temporary saving of capital to the country. If the payment of legal-tender notes to soldiers and contractors had been simply a taking by the government for its own purposes of the products of American laborers and manufacturers, the country would not have been the gainer. But there was another principle involved, which affected the country as a whole to substantially the same extent. This lay in the fact that the country as an economic unit was enabled to acquire from abroad the control of an amount of capital or goods representing approximately the amount of the new currency issued. No foreigner would accept the new currency in payment for his labor or its products, but the country was enabled to substitute for its existing currency, consisting of standard metal, a new currency of paper, and to pay for imported goods by the exportation of gold, which would

otherwise have had to be paid for by the exportation of other goods.

It is an important principle of economics that the employment of paper substitutes for metallic money tends to afford a means of drawing capital into use which would otherwise have remained idle. While this principle is not ordinarily so applicable to issues of government paper as to bank-notes—because the former do not grow out of normal commercial transaction—yet in a time of unusual need for supplies by the government, such as occurred during the Civil War, the issue of such paper, by increasing the immediate resources of the state, may have contributed to keep capital at home and to substitute gold for it in the settlement of obligations incurred abroad. In this sense the appropriation by the state of an equivalent amount of the capital of the people was a justification of the argument of Dubois, that the mercantilists were not entirely wrong in preoccupying themselves with the formation of a war chest, and that the early expenses of a campaign require great sums to be immediately available.[1] Under ordinary circumstances, it is undoubtedly true (with some qualification), as laid down by Walras, that:[2]

"The increase in the quantity of (available) capital permitted by an issue of bank-notes consists in an increase, not in the quantity of circulating capital, but in that of fixed capital."

Under normal conditions, the quantity of circulating capital which a country requires does not differ widely enough from time to time to prevent new savings from being added for the most part to the stock of fixed capital in the form of tools, investments in machinery, and buildings. This would be the natural effect of the issue of irredeemable paper in large amount and the consequent expulsion of a gold currency in time of peace. In time of war, however, when a large number of persons are with-

[1] *Précis de l'Histoire des Doctrines Économiques*, I., p. 265.
[2] *Études d'Économie Politique Appliqué*, p. 362.

drawn from the ranks of producers to become consumers only (as soldiers), it may be questioned whether nearly all the capital, fixed or circulating, which is capable of such conversion, is not put into consumable goods like rations, uniforms, and ammunition.

If this is so, it explains in some degree the latent tendency to seize upon the metallic currency as a war resource. That this was the real economic tendency of the greenback issues—to concentrate the producing capacity and economic energy of the country upon the equipment of its armies at home—is borne out to a rather remarkable degree by the statistics of foreign trade. They show a falling off in exports of merchandise from an annual average of about $273,000,000 for the five years ending with 1860 to about $187,000,000 for the five years ending with 1865.[1] Home production was thus diverted to home consumption. The metallic currency was treated in effect as a reserve fund which was seized upon by the government for the emergencies of war. It was a process of a similar nature to that which led the Greek commanders to strip the temples of their treasures in the internal wars of Greece, or which has led patriotic subjects to despoil the churches of their gold and silver ornaments in times of national stress.

Up to the point that the amount of paper issued by the government did not exceed the amount of metallic currency driven from circulation, the community as well as the state profited in a narrow sense by the economy of the capital previously invested in gold. Gold had a world market. It was the most negotiable thing with

[1] The figures of imports are also striking. They fell from $353,616,119 in 1860 to a minimum of $189,356,677 in 1862, but recovered to an annual average of about $266,000,000 for the next three years. The outward movement of gold seems to have been delayed until the year beginning July 1, 1863, but reached a net amount of over $200,000,000 within the next three years.

which the United States could settle their obligations abroad. Hence, as Mitchell points out:[1]

"Gold really became redundant in the United States when it had been withdrawn from current circulation as money, and when bankers were asked for exchange they could 'find no commodity so cheap as gold to ship and draw against.'"

When all the metallic currency had been driven abroad, however, and the government made additional issues of paper, the community as such ceased to profit. The government took from its own citizens the products of their labor and forced them to accept in payment its paper promises. Unfortunately, this has been the usual history of government paper money. The necessity found in weak financial resources for issuing it in the first place has become a more imperative reason for continuing to issue it. The government which, at the beginning of war, could convince lenders of money at home and abroad that it would avail itself of the gold currency only to the extent of substituting paper for a part of it, keeping such paper constantly at par and obtaining its chief resources from loans and taxation, might accomplish some small degree of economy by its paper issues. But in the nature of the case, it would be extremely difficult to give convincing pledges that the issue of paper, when once entered upon, would not be repeated and continued until gold had been driven from the country, paper had depreciated until it was the sole standard of value, and the national finances had become so deranged that public credit was seriously impaired. The government strong enough to adopt a sound policy with success would be strong enough to do without legal-tender paper at all, so that for practical

[1] This fact is used also to prove that the price of gold was not artificially enhanced by "speculation," as claimed by some of the paper-money men, because in that case exports of gold would have been checked and imports of the metal have begun.—*History of the Greenbacks*, p. 191.

purposes it may be said that the government which enters upon the policy of issuing government paper to meet an emergency forfeits confidence in its purpose and its ability to continuously fulfil its obligations.

It has been the usual history of government paper that the first issue has been made reluctantly and under solemn pledges that it should not be increased, but that such pledges, when a new emergency arose, have been treated lightly as "dicers' oaths." Such was the history of the legal-tender act of 1862 in the United States. When Secretary Chase submitted his annual report to Congress in 1861, he discussed the project of issuing government paper, but declared that its possible consequences were:[1]

"The temptation, especially great in times of pressure and danger, to issue notes without adequate provision for redemption; the ever-present liability to be called on for redemption beyond means, however carefully provided and managed; the hazard of panics, precipitating demands for coin, concentrated on a few points and a single fund; the risk of a depreciated, and depreciating, and finally worthless paper money; the immeasurable evils of dishonored public faith and national bankruptcy."

These possible disasters, Chase declared, so far outweighed the probable benefits of the plan, that he felt himself constrained to forbear recommending its adoption. Yet within four weeks after the meeting of Congress a bill had been introduced by the chairman of the sub-committee charged with the subject,[2] providing that "for temporary purposes," and until a banking law could be put in operation, legal-tender notes should be issued to the amount of $50,000,000. To this measure Chase gave his

[1] Spaulding, p. 10.

[2] This was Representative E. G. Spaulding, of Buffalo, author of a work on the history of the legal-tender paper, of whom Sumner sarcastically observes that he "claims to have been the author of this act, and no counter-claimant has ever arisen."—*A History of American Currency*, p. 198.

reluctant assent.[1] Warnings that the first issue would lead to others passed unheeded over the heads of members who preferred issuing fiat paper to testing the merits of heavy taxation.[2] Before the bill became law, the limit of issues had been raised to $150,000,000, and other issues soon came. The first act became law February 25, 1862. On June 7, 1862, Secretary Chase was writing to the Committee on Ways and Means, asking for more notes. The authority to issue them was granted, to the amount of $150,000,000. Descent of the path of irredeemable paper became easier with each step. In January, 1863, a bill providing for $100,000,000 more notes was introduced, passed both houses of Congress, and received the approval of President Lincoln, all within three days.[3] This issue was only part of a larger one which was coupled with a restriction on the issue of small bank-notes.

From the suspension of specie payments by the banks at the close of 1861, a premium on gold appeared, but it did not rise above three per cent. until May, 1862. After that the premium rose rapidly. The price of gold in currency was 115⅛ at the beginning of August, 122¾ early in October, and 132¼ at the close of December, 1862. Within the next two months it was as high as 172. Importers bought gold not merely for the payment of customs duties, which were still exacted in gold, and for direct payments to foreigners, but also for protection against fluctuations in the value of the currency between the times goods were bought and sold. Exporters bought and sold for similar reasons, and even manufacturers and merchants in domestic trade sought in the same manner to protect themselves on their future contracts expressed in

[1] Letter of January 22, 1862.—Spaulding, p. 27.

[2] *Vide* Mitchell, p. 57.

[3] The original bill called for $50,000,000; but on Lovejoy's motion the amount was doubled. "Then," says Mitchell, "without any discussion the resolution was passed."—*History of the Greenbacks*, p. 109.

paper currency. Thus men of foresight obtained the advantage they usually obtain in times of uncertainty and speculation over those who drift with the current.[1] While wages rose eventually in paper, prices rose much faster. In 1863, according to a careful investigation, prices, in comparison with a basis of 100 in 1860, stood at 148.6; wages had risen only to 110.5. In 1864 prices stood at 190.5, wages at 125.6. Some of the effects of these conditions are thus summed up by Dewey:[2]

"As the purchasing power of earnings was greatly diminished a heavy load was placed upon the laborers of the country. The government was the largest employer of labor in workmen, clerks and soldiers; but the government rarely makes changes in its salaries or pay, and hence did not feel the full effect of the increase in wages which took place in the individual field of labor."

Even the benefits of disposing of the gold currency abroad were transitory and were more than offset by the bad effect of the paper issues on our international credit. It became necessary to raise at home all the capital required for carrying on the war, instead of borrowing a part, to be repaid when the country was not under such stress. The effect of this policy abroad was incidentally political as well as financial. As Bagehot points out:[3]

"The old countries were frightened by the probable issue of unlimited inconvertible paper, and they would not lend a shilling. Much more than the mercantile credit of America was thus lost. The great commercial houses in England are the most natural and most effectual conveyers of intelligence from other countries to Europe: if

[1] Simon Newcomb declares: "A system of paper money may be described, in general, as a *convenient device for throwing the entire burden of an extraordinary expense upon that class of the community who have most faith in the paper money.*"—*Financial Policy during the Southern Rebellion*, p. 114.

[2] *Financial History of the United States*, p. 294.

[3] *The English Constitution*, Works, IV., p. 46.

they had been financially interested in giving in a sound report as to the progress of the war, a sound report we should have had. But as the Northern States raised no loans in Lombard Street (and could raise none because of their vicious paper money) Lombard Street did not care about them, and England was very imperfectly informed of the progress of the civil struggle."

Nor was this incident peculiar to this particular case. The government which issues irredeemable paper either separates itself absolutely from the international money market or condemns itself to paying there a high premium for the lack of confidence which its own policy has aroused. If Japan in 1904, instead of jealously guarding her gold reserve and applying to its restoration the proceeds of her first foreign loan, had issued paper money, she might, indeed, have obtained financial aid in London in the form of loans, but it would have been upon the onerous terms upon which it has been granted to backward peoples of uncertain credit and disordered finances.

Upon the whole, therefore, the issue of paper money is a resource which can seldom, if ever, be availed of to advantage in meeting emergencies. Governments which enter upon the issue of paper money rarely restrain the amount within the limits of the stock of metallic money which is displaced. Every new issue, if it adds to the amount legitimately required to take the place of coin, by this very fact separates the value of the paper further from that of gold. This rise of the gold premium in its turn accentuates distrust of the paper, sends its gold value still lower, and causes a demand for increased issues. The actual course of events has verified the summary made by Schwab in reference to the Confederate paper of the Civil War:[1]

"The paradox that a further redundancy of notes would create a still greater scarcity by driving prices still higher

[1] *The Confederate States of America*, p. 147.

and putting commodities still further beyond the reach of the note-holder, was seldom understood. 'The business wants of the country' were never satisfied, and were calling for more notes during the inflation of the Confederacy, just as they were in the North at the same time, and as they always had done in former periods of suspension in our history. Under similar conditions the pressure for more currency was always inevitable and generally irresistible.

"The history of the French *assignats* offers an instructive parallel. We hear constant complaints of a lack of a circulating medium and a clamor for more notes, especially of small denomination. Exactly the same cry was raised in Austria during the fifties and in Russia during the next decade. It is always the same story: as the irredeemable paper drives up prices, the public demands, and generally gets, more notes with which to meet this higher price level."

Thus, the general tendency of government paper issues is to create "a vicious circle," by affording a tempting means for meeting demands for increased issues while affording no means of curtailing them when they have become obviously excessive. If it were possible to regulate the stock of paper money automatically, so that it would in fact respond to the demands of trade, while confidence in the issuing power remained unimpaired, it might be possible in theory to keep government paper currency near the level of its declared value in coin. Thus far in monetary experience, however, the only practicable means of doing so has been found to consist in direct redemption at par in coin. Rarely have governments been able to maintain such redemption at the time of issuing government paper, and in many cases they have not even sought to maintain it.

In some of those communities which have gotten beyond the struggle for bare economic existence and have learned the lesson of disaster taught by excessive issues

of paper, a moderate policy has in recent years been adopted which has guarded against some of the chief dangers of such issues. If such paper is to be issued without grave risk, it should form only a small proportion of the total circulation, leaving a large vacuum for money of the standard metal. Within such limits government paper, when redeemable on demand, forms a substratum upon which the more elastic element of the metallic currency may be superimposed. This has become by the progress of events the practical character of the use of paper in the monetary systems of the United States and Canada in recent years.

In the United States the $346,681,016 in greenbacks, left outstanding by the law of May 28, 1878, has not been increased. The total stock of currency in the country expanded from $789,790,976 at that time to $2,885,079,229 on July 1, 1905. If there had been no other paper issues or token currency infused into the circulation in the meantime, the increase would have been in the form of the standard metal. The greenbacks would then have constituted only about one-eighth of the total stock and would have formed no menace to the integrity of the currency system. In Canada the principle of maintaining a limited issue of government paper as an economy to the government and the community has resulted in the issue of what are called "Dominion notes" in denominations of $1, $2, and $4. Against such issues up to the amount of $30,000,000, a reserve of fifteen per cent. in gold is required, while beyond this limit the notes must be fully covered by gold, making them substantially gold certificates. As the banks are required to keep half their reserves in Dominion notes and their circulation has greatly increased in recent years, the joint demand from the banks and for small notes in circulation has accumulated a large gold fund in the Dominion Treasury.[1] In Austria, how-

[1] The amount of this fund at the close of 1904 was $35,906,822, an increase of about twenty-five per cent. in a single year, indicat-

ever, the issues of government notes made in times of stress, in spite of the fact that they were materially reduced, proved a clog to the resumption of specie payments by the national bank until in 1902 they were practically all retired.[1] Their history demonstrates how difficult is the maintenance of a government paper issue except by the strongest governments, on the most limited scale, and under the most severe regulations.

ing a note circulation of about $61,000,000.—*Money and Risks* (February, 1905), XII., p. 66.

[1] *Vide* Raffalovich, *Le Marché Financier en 1902–03*, p. 820.

IX

HOW THE VALUE OF GOVERNMENT PAPER IS DETERMINED

Not subject directly to the international movements of gold—Influence of the principle of demand and supply—Factors which affect demand—Confidence in redemption at par—Fluctuations of the greenbacks during the Civil War—Influence of the foreign exchanges—Experiences of Brazil and the Argentine Republic—Effect of depreciated paper on prices and exports—Governments not fitted to regulate and maintain the paper currency.

EXPERIENCE has shown that the value of irredeemable paper money is subject to violent fluctuations. It does not escape the influence of the principle of supply and demand, which affects the value of a gold currency or one redeemable in gold, but both supply and demand are subject to special influences which greatly widen the range of fluctuations to which a redeemable currency is subject.

The essential principle which should regulate a government paper currency, not directly redeemable, but intended to be kept at par with gold, is that supply should be kept within the limits of demand. In countries having a metallic standard the variations of demand for currency are met by the ebb and flow of the standard metal under the influence of changes in the discount rate at the banks. This ebb and flow of the standard metal cannot be counted upon in a country having a currency exclusively of government paper or tokens. Recourse must be had, therefore, in endeavoring to regulate the value of irre-

deemable paper, to various external indications of its metallic value and means of influencing this value.

If the quantity of money required by a country were always the same and could be ascertained, either statistically or by the automatic operation of economic law, government paper money issued to just this amount might retain nearly its nominal value. The fact that the demand for money varies, however, introduces an element of fluctuation into the exchange value of government paper greater than that which occurs with coined money. There are several reasons for this. In the first place, even if confidence prevailed generally in the character of the government paper and its issuer, there would be no efficient means of adjusting the quantity accurately to the demands of trade. Such an adjustment comes about automatically with a gold currency by the exportation of the surplus when money is too abundant, and importation to fill the void when the stock of money is deficient. But as government paper money is not exportable, there is no remedy for an excess of it in the absence of provision for redemption. The result is that under such circumstances the supply of money becomes excessive and this excess tends to reduce its value. The surplus accumulates in the banks. The banks have no means of getting rid of it except by loans and advances, and by making loans and advances at low rates of interest they tend to foster speculation and to raise prices.

Some other rule must, therefore, be applied to the currency to keep it within the limits of commercial requirements. The essential tests which have been thus applied have been the promise of redemption in the future, limitation of the quantity, and regulation by the foreign exchanges.

A paper currency which is redeemable on demand is ordinarily at par with the metallic standard. Its value cannot depart far from that of the metal for which it is freely exchangeable. It is paper currency which is not

redeemable with which the economist and statesman have usually to deal, however, and the question what influences operate upon its exchange value in gold is intricate and many-sided. We have already seen that the principle upon which its value rests is that of monopoly supply—the control by government of the quantity of the instruments of exchange which are daily required in the business transactions of the people. If the government is parsimonious in supplying the instruments of exchange, the value of the unit will be higher than if the government is generous in their distribution. In a broad sense the principle is sound which is laid down by Sumner:[1]

"The whole story which precedes goes to show that the value of a paper currency depends on its *amount*. At the time of issue, or during a war in which the issuer is engaged, it depends in some degree on his credit; but when it settles down in peace as the normal medium of exchange its value comes to depend almost purely on its amount. This amount, of course, is relative to the requirements of the country for the purpose of performing its exchanges. What the requirement is, however, no man can tell."

This rule is what may be described as the static rule of the value of inconvertible paper. The dynamic rules are more varied and perplexing in their operation, and often so far obscure the operation of the static rule as to entirely counteract its influence. In regard to inconvertible paper, the caution is perhaps even more important than in regard to gold—that quantity is only one of many

[1] *A History of American Currency*, p. 221. The rule is stated even more graphically by Marx: "How many reams of paper cut up into bills can circulate as money? Put in that way, the question would be absurd. The worthless tokens are signs of value only in so far as they represent gold within the sphere of circulation, and they represent it only to the extent to which it would itself be absorbed as coin by the process of circulation; this quantity is determined by its own value, the exchange values of the commodities and the rapidity of their metamorphoses being given." —*A Contribution to the Critique of Political Economy*, p. 155.

influences affecting its relation to goods. The other influences, moreover, which may act upon the value of paper are often much more violent in their effects than any which can operate upon the value of gold. Impairment of credit enhances the value of gold; it may depress the value of inconvertible paper. Changes in the value of gold, moreover, within a single community are mitigated in their ultimate effects by the resistance of the gold stock of the world; changes in the value of inconvertible paper may have their violent ups and downs, influenced only slightly and indirectly by the movement of gold in the world's markets. Among the influences thus operating on the value of paper are cited by a careful student:[1]

"The momentary credit of the government, the course of military events, the policy of the banks, the export of specie, the demand for gold from importers, the probability of fresh issues of legal-tender paper, treasury sales of gold, speculative manipulation of the markets, the chance of resumption of specie payments."

Most of these factors, though not all—depend upon the degree of confidence of holders of paper in its ultimate redemption. Changes of opinion on this subject cause fluctuations in the value of paper, without changes in any visible and material factors which might affect its value. Such changes of opinion, due to military and political events or even to psychological moods, are not subject to calculation by any mathematical rule. They introduce an element of speculation into the value of paper money which cannot well enter into the value of gold or of notes redeemable in gold. Even bank-notes are subject to this influence when irredeemable, as in the case cited by Gallatin:[2]

"A more striking instance of the sudden alterations in value to which notes not convertible into specie are liable is to be found in that which took place in England, in the

[1] Mitchell, p. 189.

[2] Writings, III., p. 263.

spring of 1815, on the landing of Bonaparte from the island of Elba. The bank-notes had gradually risen in value since the peace, and were not depreciated more than 12½ per cent. in the beginning of March. Towards the end of that month, and within less than a fortnight, the depreciation was 25 per cent., although there had been, during that time, neither additional issues of paper nor exportation of the precious metals."

Equally remarkable were the fluctuations in the value of the "greenbacks" from similar causes. The first reports from Chancellorsville (May 3, 1863), indicating a Union victory, carried the gold value of $100 in greenbacks to $67.45. Three days later, when all doubt of a Union disaster was at an end, the quotation had fallen to $64.62. When Gettysburg was won, on the other hand, the quotations for currency, which had been $68.97, rose to $72.46, and the next day, on news of the capture of Vicksburg, to $75.47.[1] This was a rise of more than nine per cent. and might well have disconcerted the quiet tradesman who was accustomed to count upon a stable value for money, if domestic prices had followed the ups and downs of the gold premium. In the case of exporters who had sold their goods in a gold market, while buying raw materials and labor in paper, their profits were subject to the gold premium and might be entirely wiped out by too rapid a rise in paper and a corresponding fall in the amount of it received for a gold draft.

Political events, foreign relations, and false news had their share also in affecting the gold value of paper. The assassination of Lincoln carried down the quotation in one evening from $67.97 to $60.61, with a subsequent rally to $63.90. Republican success at the polls in 1864, interpreted as insuring the prolongation of the war and the indefinite postponement of specie redemption, carried down the quotation from $40.65 to $38.46.[2] Naturally,

[1] Mitchell, p. 204.

[2] *Ibid.*, p. 206.

such an event as the success of Jay Cooke's project for obtaining subscriptions for five-twenty bonds at the rate of $2,000,000 per day caused the currency to rise from a level of about $65.00 prior to March 23, 1863, to $71.68 on March 25th. While these changes were attributed by many to "speculation" in gold, the fact was indisputable that the paper currency, being separated from gold by its inconvertibility, had become in its daily fluctuations the plaything of every breath of rumor and in its permanent downward tendency, until the tide of battle turned, a mirror of declining faith in its ultimate redemption. In vain Secretary Chase, in 1864, threw the government stock of gold upon the market. He was obliged himself to confess in regard to the gold premium, that "military success is indispensable to its permanent decline, or, in the absence of military success, taxation sufficient . . . to reduce the necessity for borrowing to the minimum."[1]

Conditions in the South were worse than in the North. There by the fall of 1863 at least $700,000,000 in treasury notes must have been in circulation, which was increased by several hundred millions during the next two years.[2] The value of gold was expressed in multiples of paper, so that by December, 1863, $20 in paper was required to purchase $1 in gold. In the South as in the North, fluctuations followed the news from the battle-field, and as the fortunes of the South declined the paper value of gold rose in March, 1865, to $61, and the paper soon after became practically worthless. There also the laborer suffered by the fall in the purchasing power of his wages, trade in many sections was reduced to barter,[3] and speculation ran riot in both paper and commodities. The

[1] Mitchell, p. 227.

[2] Schwab, p. 165.

[3] Among other instances, "in the fall of 1862 already we find an iron-manufacturing concern in South Carolina announcing that it will barter given quantities of nails and iron for given quantities of bacon, leather, flour, corn, and other products."—Schwab, p. 163.

effect upon legitimate business is thus set forth by Schwab:[1]

"With the value of the currency constantly falling, and the price of commodities rising, the holder of notes felt the strongest incentive to turn them into commodities. The longer he held the notes, the less they would buy. The rising market invariably led to the wildest speculation, into which everyone was necessarily and unconsciously drawn. . . . With prices constantly rising, it seemed impossible to lose by any venture, and all seemed to grow rich by investing their notes in commodities, and selling these at an advance. The mania affected young and old alike, and extended to every kind of commodity. As one observer put it, 'Every man in the community is swindling everybody else.'"

Where direct redemption of government paper at par on demand is impracticable, a means of determining its value with a certain degree of effectiveness has been found in the state of the foreign exchanges. The manner in which the value of such paper in specie has moved up or down in response to special demands or to alterations in supply has gone far to demonstrate the theory that money is a commodity having a special use as a medium of exchange and that a limited quantity of paper can be maintained in circulation for fulfilling this use without depreciation. The difficulty of applying this theory in practice has been that of restraining the primary issues within temperate limits and afterwards finding an efficient means of expanding or contracting them in conformity with the movement of foreign exchanges.

The principle that the foreign exchanges are the best practical test of the value of a paper currency was set forth in the Bullion Report made to the British Parliament by Sir Richard Horner in 1811. The cost of an ounce of gold in English bank-notes had then risen to £5

[1] *The Confederate States of America*, p. 229.

when its gold value was £3 17*s.* 6*d.* Notwithstanding this patent fact, it was contended by the advocates of continued issues of notes that it was gold which had risen in value and not notes which had fallen. It was sought to set up the remarkable theory that the pound sterling was an intangible measure of value and was not a definite weight of metal. Even the directors of the Bank of England adopted the extraordinary view that so long as they discounted good domestic bills of exchange, there could not be over-issues of bank-notes, whatever might be rates of foreign exchange. The Bullion Report demolished these theories and held to the true principle, that currencies which depart from a fixed value in gold have ceased to have any value except that determined by their relations to gold.

One of the most interesting illustrations of the influence of the foreign exchanges upon an irredeemable paper currency is afforded by the history of Brazil. As a large part of the produce of the country is exported, the foreign exchanges play an important part in determining the movements of money. Issues of government paper took place before 1860, but it was about that time that metallic money disappeared from circulation and the paper currency became inconvertible. Par of exchange was 27*d.* in British gold, and the fact that exchange did not fall below par on the issue of 40,000,000 milreis in paper has been cited as evidence that "the quantity of paper money in circulation exercises no influence on the rate of exchange." What then occurred, however, was the substitution of paper for gold, leaving the quantity of the circulation substantially unaltered. As the situation is explained by Wileman:[1]

"When gold had emigrated to the value of the increased emission prices returned again to their normal level, and exchange to *par*, international exchange having

[1] *Brazilian Exchange*, p. 164.

been meanwhile uniformly favorable, whilst the foreign loans of 1858, 1859, and 1860, undoubtedly powerfully influenced the final result. It was, therefore, perfectly practicable in 1860 to increase the amount of paper money in circulation without any apparent depreciation."

From 1860 to the fall of the empire in 1889 there were occasional excessive issues of paper, but also several rallies in the rate of exchange, which left the country upon a comparatively sound basis, with exchange at par. The disorders attending the change of government, however, resulted in the increase of the circulation (including irredeemable bank-notes) from 198,815,562 milreis in 1889 to 703,825,960 milreis in 1894. Inevitably, under such a deluge of paper exchange fell—from an average of $27\frac{1}{4}d.$ in 1889 to $10\frac{1}{16}d.$ in 1894. The fact that exchange was several times at par, however—in 1875 as well as in 1889—besides having remained comparatively steady above $25\frac{7}{8}d.$ from 1860 to 1864, afforded an illustration of what can be accomplished in the regulation of an inconvertible currency where the quantity is not excessively increased. Even the fall of exchange from 1875 to 1885—from $27\frac{1}{8}d.$ to $18\frac{5}{16}d.$—although amounting to about thirty-three per cent. — was equivalent to only 3.3 per cent. per year and was only gradually felt in wages and prices.

Reduction of the volume of out-standing paper was one of the essential provisions of the funding contract with the Rothschilds signed at London in May, 1898. Exchange then oscillated between $6\frac{15}{16}d.$ and $7\frac{3}{4}d.$ Between that date and June, 1901, there was a reduction in outstanding paper of 94,738,000 milreis and exchange moved up to $12d.$ — a rise of sixty per cent.[1] Almost equally rapid was the improvement in the next few years, which carried exchange rates as high as $17d.$ in the spring of 1905. The question was already being seriously de-

[1] *Économiste Européen* (March 24, 1905), XXVII., p. 361. Closely related to the improvement in financial conditions was the termination of deficits in the budgets.

bated in Brazil upon what basis specie payments should be resumed—whether at 12*d.*, which would legalize the average of many months up to 1905, or at a slightly higher rate.

This question of the rate at which gold payments should be resumed is always an important one in countries seeking to abandon the system of inconvertible paper. In the United States in 1875 the decision was for a return to a gold dollar of the same weight and fineness as that in use before the Civil War. Specific performance of the contract to pay such a dollar, upon the ground of common honesty, was the argument chiefly employed and the one which prevailed. There is much to be said, however, in favor of recognizing actual conditions by adapting the unit to its gold value at about the time of resumption. This was the policy adopted in Austria-Hungary in 1892 and in Russia in stabilizing the paper ruble in 1894. Such a method avoids the disturbance of wages and prices which occurs when the value of the monetary unit is suddenly or progressively enhanced. In the case of paper money, moreover, it is much more justifiable than in the case of bonds, because the losses which have occurred by the depreciation of the paper have been diffused among many persons and over a long period of time. The holders of such paper receive it at substantially its current value and not at the value of the gold unit in which it is expressed. For in most cases it was not even issued at the value of the unit.[1]

More important than the interest of the individual noteholder in such cases is the interest of the producer for export. An appreciating unit means for him an increased

[1] Thus, in the case of the Brazilian paper money, the sum of 595,465,000 milreis issued from January 1, 1890, to December 31, 1898, at times when gold exchange varied all the way from 26.25*d.* down to 5.62*d.*, represented a gold value of 327,241,000 milreis of the old standard.—*Économiste Européen* (April 7, 1905), XXVII., p. 424.

cost of production (because of his inability to at once reduce wages and the cost of raw materials) without any compensating increase in gold price in foreign markets. Having profited by a depreciating currency at the expense of his laborers, he finds that the profits which he has derived from such conditions are reversed by an appreciating unit. He is in a position to understand the fact brought out in regard to the dislocation of the exchanges between gold and silver countries, that the apparent profit of the exporter is obtained by surrendering a constantly increasing quantity of national products for foreign products and at the expense of the economic impoverishment of the country.[1] Such a feverish stimulus to special industries works harm in another way. It causes neglect of the culture of necessary food products, like rice, and the importation of foreign stocks, which have to be paid for on the basis of the high gold values of the countries where they are produced.[2] To guard against such evils in future, consecration by law of the *status quo*, or approximately that, has been preferred in recent currency reorganizations.

An imperfect method of maintaining the value of government paper at parity with foreign exchange is afforded by the issue of notes at a fixed rate for gold.

[1] When exchange in Brazil rose to 17*d*., in the spring of 1905, it was reported by the United States consul at Para, that in the case of cacao, "the price offered to the producer is actually less than it costs him to gather and prepare his crop, not including its bringing to this market, and, consequently, orders have been sent up the river not to gather the cacao, but to let it rot on the trees."—U. S. Consular Reports (June, 1905), LXXVIII., p. 243.

[2] Carvalho, p. 14. The rise of Brazilian exchange reacted on gold exchange in Portugal in the spring of 1905, by reason of the disposition of Brazilian importers to seize the occasion of favorable rates to settle old debts in Portugal.—*Économiste Européen* (February 24, 1905), XXVII., p. 228. This would not have happened to the same extent if the rise had not been considered as transitory.

This is the method which has recently been adopted by the Argentine Republic in the effort to steady its currency system, long deranged by issues of paper which the government was not strong enough to redeem. Large crops sold abroad did not create at once a corresponding demand for foreign commodities and were, therefore, paid for in English gold. This gold was not a customary and convenient method of circulation in the Argentine Republic, because no provision had been made for its conversion into Argentine coin. The government, however, agreed to receive it at the *Casa de Conversion* at a fixed rate for its own notes, issuing a paper peso for each forty-four centavos which were deposited in gold. The offer to make this exchange would not have inspired confidence except for the fact that the government had ceased the issue of notes except for gold. Practically, therefore, under this systemthe excess of the Argentine currency above a certain limit consists of gold or its paper representatives. This system can be regarded as only a step towards ultimate redemption of the paper on demand in gold, but contributed greatly to improve the condition of the Argentine currency.[1]

The essential difficulty, however, in all government measures for regulating the value of government paper issues is the absence of power and flexibility in government machinery. It is a misconception which is widely prevalent that the financial power of the government is greater than that of the mercantile community. Thus it was said by Spaulding, in urging the legal-tender law of 1862 upon Congress:[2]

[1] At the close of 1904 the stock of out-standing paper was 410,000,000 pesos, which at the rate of forty-four centavos was equal to about $180,000,000 United States currency and was covered by gold to the proportion of about thirty-five per cent. *Vide Économiste Européen* (March 24,1905), XXVII., p. 357.

[2] *History of the Legal-Tender Paper Money Issued during the Great Rebellion*, p. 37.

"I am unwilling that this government, with all its immense power and resources, should be left in the hands of any class of men, bankers or money-lenders, however respectable and patriotic they may be. The government is much stronger than any of them. Its capital is much greater. It has control of all the bankers' money, and all the brokers' money, and all the property of the thirty millions of people under its jurisdiction. Why, then, should it go into Wall Street, State Street, Chestnut Street, or any other street, begging for money? Their money is not as secure as government money. All the gold they possess would not carry on the government for ninety days. They issue only promises to pay, which, if Congress does its duty, are not half as secure as United States Treasury notes based upon adequate taxation upon all the property of the country."

It is in the concluding phrase of this paragraph that one of its sophistries is hidden. It was precisely because Congress did not levy "adequate taxation upon all the property of the country" that the issue of irredeemable paper was thought to be necessary. Had such taxation been levied, the credit of the government would have been so high that Wall Street and other money-centres would have competed for possession of its interest-bearing obligations with the same eagerness as for the obligations of other solvent borrowers and the issue of a forced loan in irredeemable paper would not have been required. It is as idle to talk of the resources of the nation supporting paper money when redemption from those resources is refused as to talk of the resources of the owner of an entailed estate when he refuses to pay his bills. It is not because bankers have gold that they have credit; it is because they have resources for commanding gold and stand ready to fulfil their promises to pay gold. When a government is in a like position—commanding quick assets and ready to employ them to fulfil its promises—its credit likewise is good.

But a government is not ordinarily in a good position to regulate the movements and supply of the currency, even when it has good credit, intelligence, and right purposes. A government ordinarily has no quick assets in reserve, like those of a bank. It receives considerable sums from the public in taxes, but is compelled to pay them out again for the usual expenses of the public service. Under a normal treasury system public expenditures are nearly equal to receipts and the amount collected in taxation is not in excess of the amount disbursed.[1] Where a surplus of receipts accumulates the government acquires a certain degree of banking power, but experience has shown that this power is clumsily exercised. This must be the case even under the most competent officials, because government operations are not based upon business transactions. A banker, whether he possesses unusual financial foresight or not, governs the volume of his loans and his rates of discount by the demands made upon him by the business community. A government encounters no such demands in concrete form, and can only act blindly and arbitrarily by transferring sums from its own funds to those of the banks and back again, or by changing the time or manner of its disbursements. These disbursements are for public purposes and are not commercial. They often run counter to the commercial movement.

Hence any move made by a public official to control the volume of money, however well-intended and well-directed it may be, cannot in the nature of the case be the result of normal business causes, acting automatically,

[1] The average receipts of the United States Treasury are below $2,000,000 per day. Bank clearings in the United States for the year ending September 30, 1904, were $102,150,313,982, or at the rate of more than $300,000,000 per day. The banks, therefore, may be said to be one hundred and fifty times stronger than the Treasury in quick assets, in spite of the reserve powers of the government.

to the same extent as the measures of a banker. In consequence of these conditions, even those governments which have sought to regulate the monetary system through their own agencies have chosen to create national banks rather than to act directly through the public Treasury. In Germany the Imperial Bank receives its governor and deputy governor from the government, but it is owned largely by private shareholders and in its daily operations comes in constant contact with the market. In France also the governor and deputy governors of the bank are appointed by the government, but this has rarely interfered with their independent action as bankers.[1] In Russia, although the entire capital of the bank is owned by the state, the regulation of the money market is better attained through a banking institution than by arbitrary interference. In all these countries, as we shall see hereafter, experience has demonstrated that the determination of the quantity of money is best left to the business community and that the issue of instruments of paper credit is best regulated by the demands of the business community upon the banks, subject only to such regulations as will promote the convenience and secure the safety of those who use these instruments.

In restoring stability to a paper currency, the co-operation of the banks is of primary importance. When specie payments were resumed in the United States in 1879, the banks of New York and Boston agreed to abolish gold deposits and to accept government notes freely in discharge of balances against one another.[2] In Austria-Hungary and in Russia arrangements were made with the national bank of issue to accumulate gold, to issue its own notes to replace the paper promises of the government, and to lend its aid in giving steadiness to exchange. In Brazil also the intervention of the Bank of the Republic in the exchange market, by buying and selling in less than

[1] *Vide A History of Modern Banks of Issue*, p. 75, and this work, bk. v., chap. vi.

[2] Noyes, p. 46.

four years £30,676,000 in bills, contributed to fix the exchange rate near 12*d.* and to prepare the country for this rate as the permanent basis of the restored monetary system.[1]

[1] *Économiste Européen* (April 28, 1905), XXVII., p. 520.

END OF VOL. I.